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We reveal how to turn your 3D work into cold, hard cash

Plus: Visualisation One on architecture and Prime Focus on making epic movies

Reviews: modo 401, Grand Designs 3D, Xara Xtreme 5 Pro, Anime Studio Pro 6

inside

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It's a jungle out there. Swing through it

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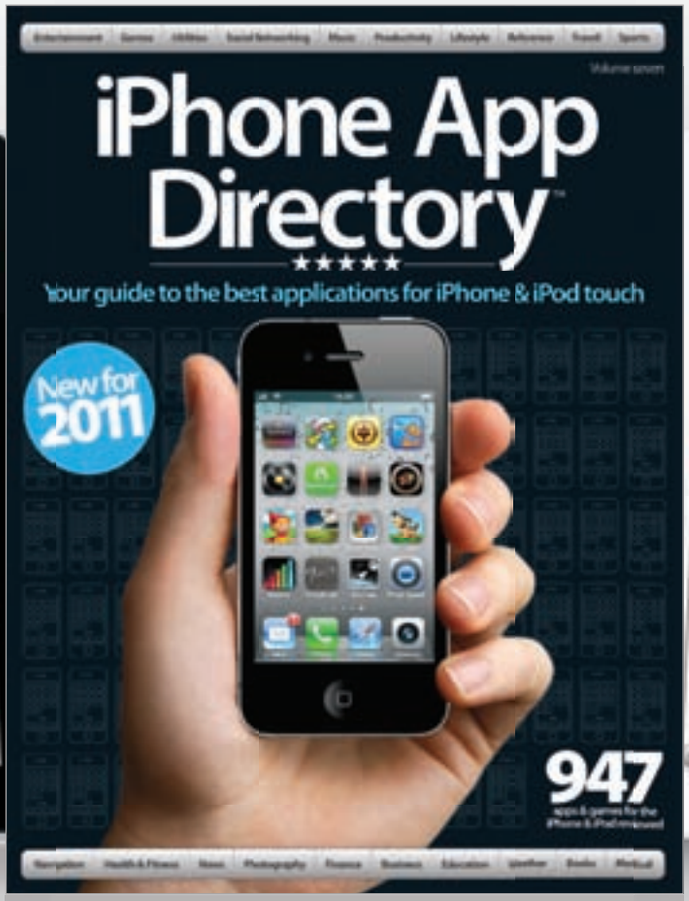

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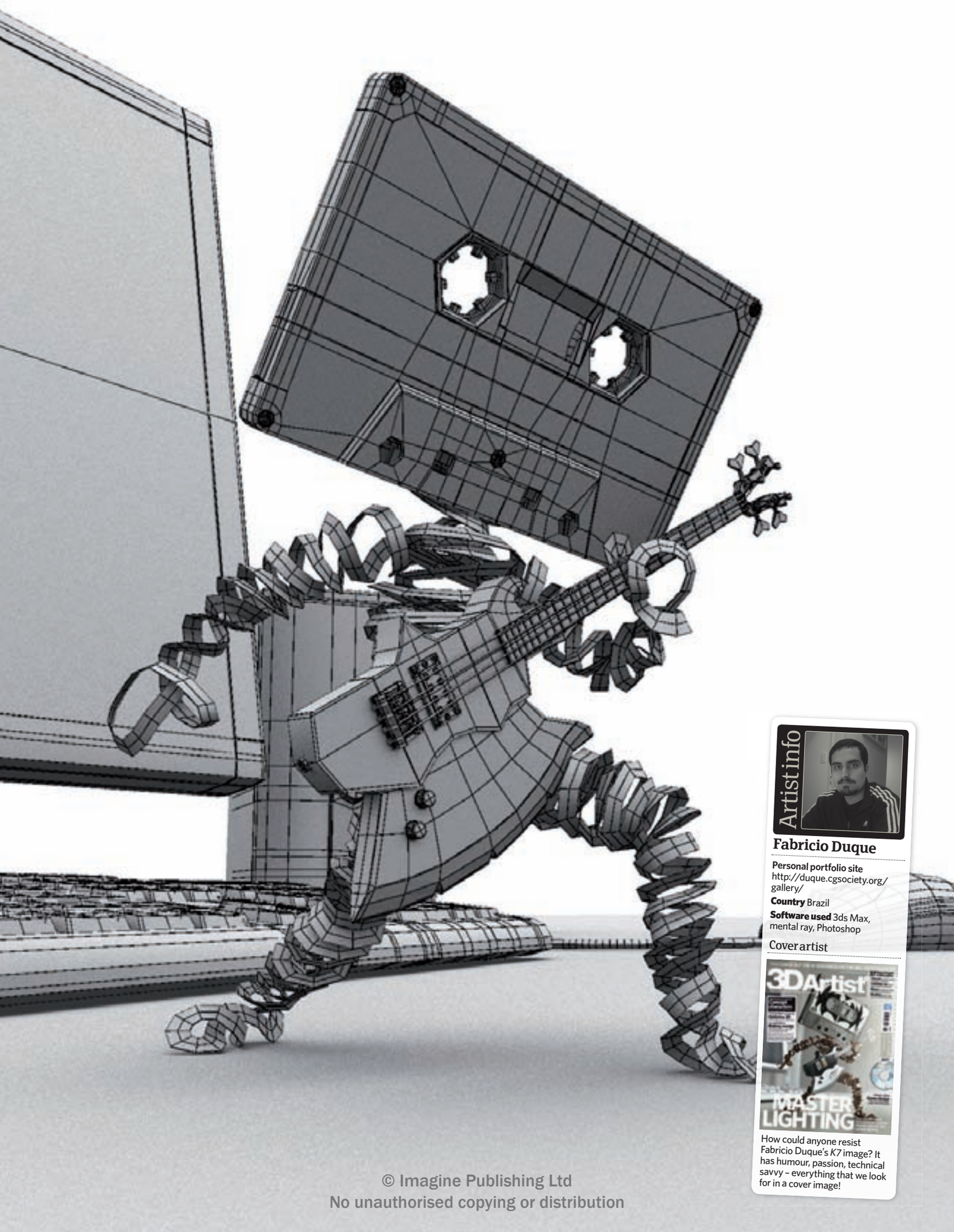

Artist info

Fabricio Duque

Personal portfolio site http://duque.cgsociety.org/gallery/

Country Brazil

Software used 3ds Max, mental ray, Photoshop

Cover artist

How could anyone resist Fabricio Duque's *K7* image? It has humour, passion, technical savvy – everything that we look for in a cover image!

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Welcome

to the magazine and 116 pages of 3D goodness

Every issue you can count on...

1. **116 pages of creative inspiration**
2. Behind-the-scenes guides to images and artwork
3. **A CD packed full of creative goodness**
4. Interviews with inspirational artists
5. **Tips for studying 3D or getting work in the industry**
6. The chance to see your art in the mag!

Times are hard but the world of 3D is flourishing, so in this issue we take a look at how you can convert that enthusiasm for 3D into hard cash. Whether that's from designing 3D objects, clothes, accessories or entire scenes, we look at who is doing it, where you can sell and what kind of money you make out of it. Take a look at page 34 for that. Also in this issue, we go behind the scenes on John Woo's beautiful film *Red Cliff*, check out arch-vis specialist Visualisation One and have a host of tutorials – now focusing on more specific skills in order to help you get the most out of them. Enjoy!

Duncan Evans,
Editor

This issue's team of expert artists...

Mark Bremmer

Want to make the most out of your skills? Mark's been investigating the best ways to earn a living from your 3D work

Jeff Miller

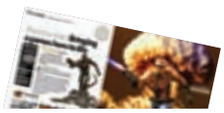
Jeff reveals how he created a superhero for a Pixologic competition. No spandex was harmed in the making...

Steve Moore

Steve shows how stock resources can be tweaked to creative perfection in his making of the *Katana* image

Lee Davies

Not only does Lee provide the first part of our robot tutorial this issue, he has a Q&A appearance up his sleeve, too



Kurt Miller

Duke Nukem is an iconic game character, and Kurt was recently asked to reimagine him. Take a peek at what he did here

Shraga Weiss

3D doesn't have to be shiny and clean – Shraga reveals how it's possible to take a cue from a traditional painting

Lance Hitchings

Lance lights up our Q&A this issue by showing how to make an interior room look as though it is being lit by sunlight

John Hayes

John reveals how to prevent your computer slowing to a crawl by optimising your game character textures

Daniel Lovas

While Lance takes care of letting the sun shine, Daniel reveals how to emulate the look of dusk in your 3D images

Lyndsey Hayes

It's Lyndsey's first appearance, so say hello! She imparts some pearls of wisdom about working with 2D

Christian Darkin

Christian takes care of our modo review this issue, revelling in four pages of tests, tweaks, conclusions and opinion

Rosie Tanner

Rosie catches up with Teesside University to see what its BA Computer Games Art course has to offer eager students

Sign up, share your art and chat to other artists at www.3dartistonline.com

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Bournemouth, Dorset, BH2 6EZ
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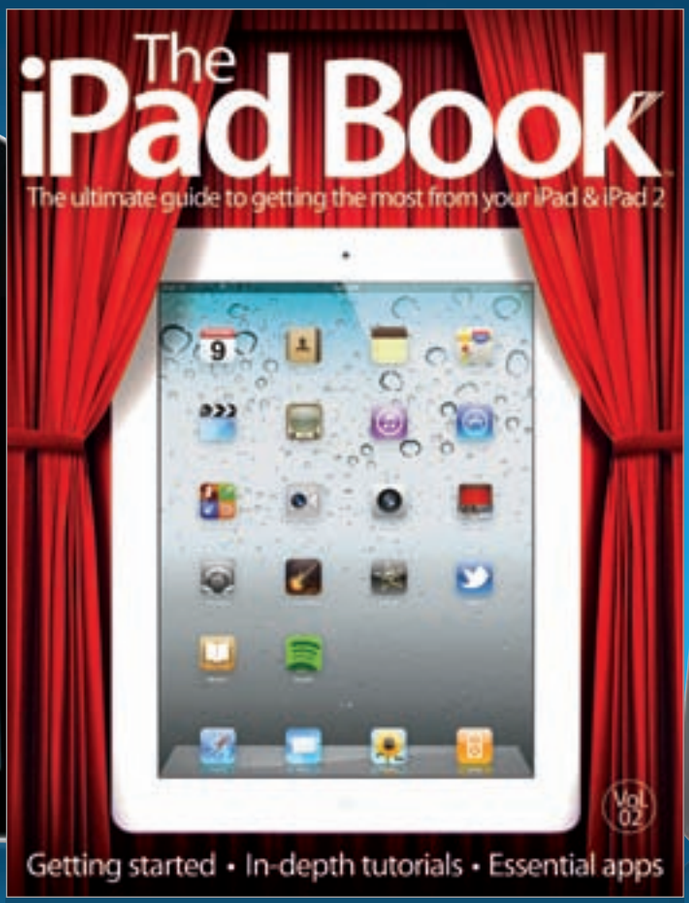
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Discover how these images were created...

Create a portrait

"My goal was to create a 3D interpretation of a classic painting"

Six-page step-by-step walkthrough guide

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“The intention was for something beautiful and glamorous with an Oriental theme”

Steve Moore on the aim for his image, *Katana*.
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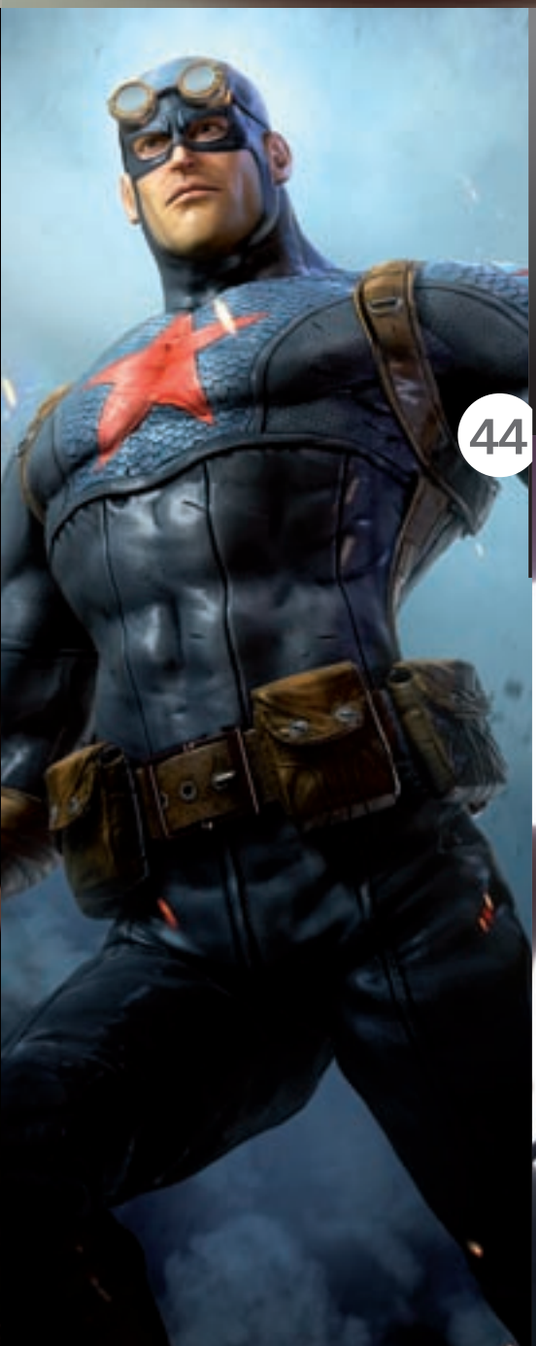

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DAZ 3D bundle: Sci Fi Sets and Vehicles

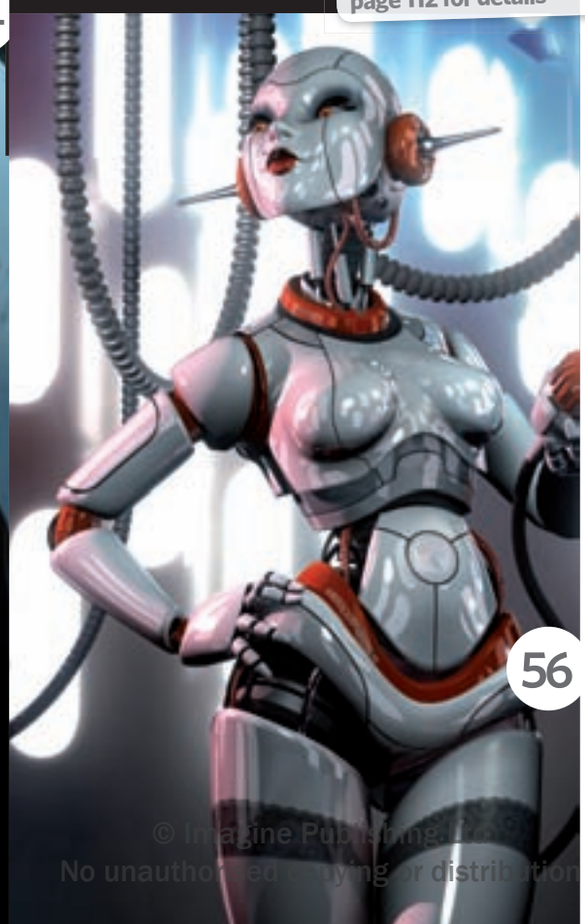
Enjoy six models to kit out your space scenes, from complete sets to vehicles

Plus Michael Jackson model, HDR images and textures

Turn to page 112 for the complete disc contents

On the Disc

Free: 3D models
Loads of them! Turn to page 112 for details



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Find out how James Knowles combined CINEMA 4D with Photoshop in this image

56 Step by step: Create an elegant robot
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66 I made this: *Victorian Garden*
Dominic Davison will wow you with his stunning natural vista, created in Vue

68 Step by step: Bring a games hero to life
Kurt Miller gets to blow stuff up in his concept art for the iconic Duke Nukem character

72 Behind the scenes: Create a classic portrait
Shraga Weiss proves that you can achieve a traditional painting effect using 3D

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There's even more inside...

Turn the page to discover the interviews, reviews, industry advice and more that we've packed into this issue...

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INSIDE ISSUE SIX

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Inspiration • Interviews • Reviews and more

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Share your art, comment on other artists' images

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You don't want to miss an issue and it will save you lots of cash

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Check out all the goodies on this issue's disc

"We have a reputation for producing interiors for luxury residencies, some with prices of £10,000,000 to £120,000,000"
Vince Flynn from Visualisation One. **Page 26**

workspace 3D

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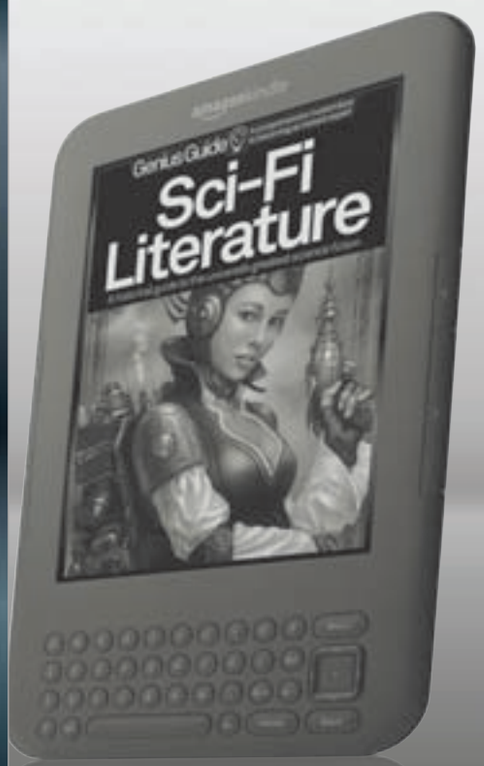

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WELCOME TO THE GALLERY

Nine pages of great artwork from the 3D community

Images we love!

Artist info

Pedro Amorim

Personal portfolio site www.edgesize.com
Country Portugal
Software used modo, Photoshop

> Besides making a nice picture to get bonus points with my girlfriend, this composition gave me a chance to test out the new version of modo, which I must say is terrific. Thanks to my muse, my girlfriend Micaela

Pedro Amorim *Scrabble of Love*, 2009

Featured artists

Pedro Amorim

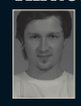
This detailed Scrabble image manages to bag a Triple Word Score from us

Carlos Florencio

The idea of visiting the blood donor nurse has never been so dark before

Mark Skelton

Skin like a tree's bark – we're not talking about Uncle Eddie, but this alien shaman

Till Nowak

A close shave for Bernard the bee in this image. Could this be why all the bees are dying...?

Christian Rambow

A diver is left to contemplate the passing of life in this clockwork-themed entry

Luis Tejeda

An Aztec temple hidden deep in the jungle captured Luis' imagination

Christian Rosentreter

A highly polished scene with high-resolution pens and marbles. Honest, it works!

Get your artwork featured in these pages

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2. Upload your images

Once registered, you can upload images to your gallery – there's no limits on numbers but check the size criteria.

3. Tell us about them!

Have an image you feel passionate about? Drop editorial an email at **duncan.evans@imagine-publishing.co.uk**.

Email or post

You'll be missing out on a thriving 3D community, but if you'd rather submit your work by email or post, here's how. Make sure your image is at least 3,000 pixels on the longest side, save it as a maximum quality JPEG or zip it up as a TIFF and email it to the address below. Please include your contact details! If you've created a Pixar-beating animation and want to see that featured on the cover CD, then save it onto a CD and post it to us. You can also send your images on CD. The addresses are:

duncan.evans@imagine-publishing.co.uk

The Gallery, 3D Artist, Imagine Publishing, Richmond House, 33 Richmond Hill, Bournemouth, Dorset, BH2 6EZ

Comment on more great 3D art...

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Create your gallery today: www.3dartistonline.com

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The team Loves

This image epitomises the concept of the femme fatale, with a twist in the guise of a dangerous zombie...

Jo Editor in Chief

"I decided to make this image inspired by the fantastic work of Tim Bradstreet. I tried to capture the mood and poses of his images and translate them to 3D in parts of my creation"

Carlos Eduardo Florencio *Be a Blood Donor*, 2009

Artist info

Carlos Eduardo Florencio

Personal portfolio site http://cflorencio.blogspot.com/

Country Brazil

Software used 3ds Max, ZBrush, Photoshop

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“I had been thinking about a creature design that I could use so I could play with mental ray’s SSS Skin Shader for fun. I had been sketching things on and off for a little while, but hadn’t come up with anything I liked. One day I was digging through an old box and found one of my old sketchpads from college. I thumbed through it and found this alien shaman guy”

Mark Skelton *Alien Shaman*, 2007

Artist info

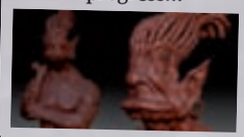
Mark Skelton

Personal portfolio site http://3dsicko.blogspot.com/

Country USA

Software used 3ds Max, ZBrush, Photoshop, mental ray

Work in progress...



The team Loves

“The skin texture here is fantastic, very specific to the genre. The lighting helps to show that we shouldn’t be afraid of this alien, as he’s coming out from the dark into the light”

Duncan Editor

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Artist info

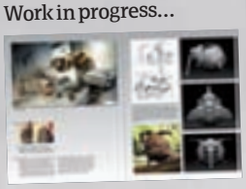
Till Nowak

Personal portfolio site www.framebox.com

Country Germany

Software used 3ds Max, ZBrush, Photoshop and After Effects

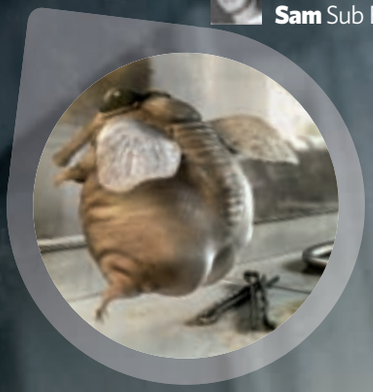
Work in progress...



The team Loves

"An image is best when it tells a story, and this one makes your heart go out to this misled bumblebee, now devoid of Till's finely detailed fur"

Sam Sub Editor



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"The character was modelled in ZBrush and then placed into a 3ds Max scene, rendered with V-Ray. A main part of the image takes place in the reflection of the mirror. This was a technical challenge, because it was impossible to compose a good arrangement without seeing the reflection in the real-time viewport. I copied the three bumblebees mirrored on the other side of the wall to be able to set up the camera angle. Finally, a lot of postproduction work in Photoshop achieved the detailed look and the mood of the image"

Till Nowak *The Shaved Bumblebee*, 2007

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The team Loves

“Christian has created such a powerful, emotive image here thanks to the strong exposure. It really makes you think, and that's the sign of a great composition”

Jo Editor in Chief

“The initial idea was born when I first read the topic for the June Gnomon Sculpting Challenge, which was Mech/Tech – Death. We all will become older, as will machines. Since I became a father, the topic is always on my mind. Also, it's amazing just to look back and realise how rapidly technology has grown over the last 20 years”

Christian Rambow *Time is Passing By*, 2009

Artist info

Christian Rambow

Personal portfolio site www.art-3d.com

Country Germany

Software used CINEMA 4D, ZBrush, BodyPaint, V-Ray

Work in progress...

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The team loves

Luis has really captured the feeling of discovery. There are only a few objects to suggest that it's hidden in the depths of a jungle, and yet that's where the viewer immediately feels they are

Duncan Editor

Artist info

Luis Tejeda

Personal portfolio site http://luistejeda.tutorial-lab.com/

Country Spain

Software used 3ds Max 2009, V-Ray 1.50 SP2, Ivy Generator and Photoshop

Work in progress...

After watching documentaries on TV, I had an impulse to do a scene from an ancient world and decided to do something based on the Aztec pyramids. I wanted to capture the view of a first discovery after a long walk through the jungle

Luis Tejeda *Aztec Pyramid*, 2009

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The team Loves

Sometimes it's the simple things in life that stand out the most, and that's certainly the case here with the wonderfully modelled pens and marbles in this image

Lora Group Art Editor

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“Sometimes it can be fun to model something rather quick and simple, so I decided to model my pen, which appeared suitable for this very purpose. I also like its look a lot. The modelling was done in 15 minutes and was pretty straightforward. Happy with the result, I decided to compose a simple scene. I also added a few marbles because I like to add spherical objects. Who doesn't? The project gave me the chance to become familiar with CINEMA 4D's new GI engine”

Christian Rosentreter *Pens and Marbles*, 2009

Artist info

Christian Rosentreter

Personal portfolio site http://tokai.binaryriot.org/

Country Germany

Software used CINEMA 4D, Photoshop

Work in progress...

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Unique is the right word to describe the 3D avatars that can be made at Evolver!

Evolution of reality

Add another dimension to your social networking with the Evolver software

Evolver is a new site offering artists the chance to create 3D characters and clones for free. These custom creations can then be exported for use in animations or on various social networking sites, such as Facebook and MySpace. You can also pay for a specifically optimised version if you'd like to use it in a game or virtual world. It's good news for designers, since the models can be made quickly and easily, saving valuable time in the process.

What's great about this service is that you don't even have to know anything about 3D to make your own clones. In fact, the interface is very similar to the Game Face function in EA's *Tiger Woods* golf games; you move the sliders back and forth on each part of the body to modify your model and achieve the look you want. Once you've customised the body, there are loads of outfits to dress your model up in, too.

Professional artists may well like to get their hands on some more advanced models, and thankfully it only costs a mere $39 US to upgrade the service. This gives you the chance to tweak the Evolver source data so these characters can be exported to 3D packages, including 3ds Max, Maya and Softimage.

When you've finished with your creation, you can transport them into virtual worlds... all for free. These models are a fast and easy way of updating your online presence; rather than including an image of yourself, you've got the chance to illustrate your love of 3D art by creating yourself as the avatar!

Evolver's site also includes a gallery section, where you can check out the latest members' creations. Some are just for inspiration, while others will be available for use and/or purchase. This is a great opportunity to get your work out there, and possibly even make some money in the process.

For more on the service, and to try it out for yourself, visit www.evolver.com.

> "Rather than including an image of yourself, illustrate your love of 3D art by creating yourself as the avatar"

3DArtist online.com

Have you made your own avatar already? Share it and get feedback from other 3D artists at **www.3dartistonline.com**

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3D web update

New sites and changes to your favourites – it's all here!

Meet 'n' greet

3D artists can forget Facebook and MySpace, as a new website called CGTweetUp is giving digital artists the chance to do some real-life, face-to-face social networking. Members of the website trot on down to CGTweetUp for the chance to chat with like-minded CG/digital artists.

While the website is still very much in its infancy, it's a great idea for artists who are just starting out and trying to make themselves known in the industry, or for hobbyists and individuals who simply want to talk about CG. It's easy to become a member of the group, and you don't have to be on Twitter to do so. Just pay a visit on the web to **www.meetup.com/CGTweetup**.

Share your assets

Luxology has launched a new website called the Luxology Community Asset Site. The team behind the site hope that it will become a portal for sharing and learning. Although we'll admit the name isn't exactly snappy, it should prove useful for some.

Artists can search for meshes, lighting environments and realistic surface materials for their own projects; meanwhile, people who are feeling particularly generous can upload their work to share with the rest of the community. There are even a few training videos on offer here. What we particularly like are some of the little notes attached to the assets with tips or recommendations. Very helpful. Check them out for yourself at **www.luxology.com/asset**.

David Louis uses Maya, mental ray, Photoshop, Fusion, After Effects, Premiere and Combustion in his images

Masterpiece StarCatcher

We chatted with David Louis – a visual effects artist with his head in the clouds

David Louis http://shadow2000.free.fr/

As we're sure many of you will agree, the detail in the image *StarCatcher* is incredible. The sense of scale that David Louis has achieved is impressive, too. It took him around four weeks to produce in his spare time, using a variety of software, including Maya, mental ray, PaintFX and eyeon Fusion.

The above piece is part of a much bigger project that Louis is working on with a collection of his friends. It is expected to be a six-minute short film about a person alone on a lost world with a giant steampunk telescope – a futuristic *Robinson Crusoe*, if you will! If this sounds like something that you would like to lend a helping hand on, take a trip to Louis' website at http://shadow2000.free.fr/ to contact him.

Britain's got talent

School students bag awards at this year's final of the Lionheart Challenge

Around 30,000 14-15-year-olds took part in The Lionheart Challenge, including in-school heats and regional finals that were held throughout the year.

Best Overall Winners were St Philomena's Catholic High School for Girls. Best Proposal Research was won by Stainburn School and Science College in Cumbria. Best Use of Technology went to Oldbury College of Sport in the West Midlands, while Yorkshire's Salendine Nook High School was awarded Best Final Presentation.

Brine Leas High School received the award for the Best Marketing Plan; the Best Advert was produced by Altrincham Grammar School for Girls and the Most Effective Team was won by the East Midlands' Beaucham College. Congratulations to all!

Argile 2

New version of Argile available

There's now a new version of Argile, which is the popular 3D retouching software from N-Sided. In addition to offering users the chance to retouch their images, Argile 2 is also capable of image rendering, painting, morphing and modelling.

The new version features a faster 3D painting module, which is also said to be more accurate. In addition to that, there's a handy Catalog system for artists to access their images, textures and other materials.

It'll cost you approximately €89 (excluding VAT) to buy Argile 2, or if you're upgrading from the first version then it'll set you back €49.

Check out **www.n-sided.com** for more details or to purchase a copy.

Website of the month: deviantART www.deviantart.com

deviantART is an established website with a massive community. It's a great site for all artists, whether they specialise in vector art, photography or 3D art. Once users have registered, they have the opportunity to upload their latest creations for the rest of the world to see. It's a great site if you are searching for some inspiration or if you fancy giving someone some feedback on their work. Categories for 3D art include characters, objects, scenes, vehicles and abstract. If you haven't done so already, take this chance to showcase your work there – you won't regret it.

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Free 3D Resources

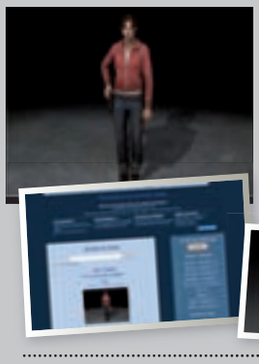
Free models and tutorials

There are a lot of resources for the cash-strapped 3D artist. Start with these...

KozByShows' 3D-studio-max

Get your fix of free three-dimensional models from this blog-style website

Web: http://3d-studio-max-free.blogspot.com/



Although KozByShows' 3D-studio-max site's design is rather basic, don't let that put you off – there are some pretty good models here. Categories include Military, Creatures and Robots. They're all fully textured, rigged and ready for animation. And, best of all, they're free. Visit the website to see for yourself.

CG Cookie

Fancy some 'freshly baked CG education'?

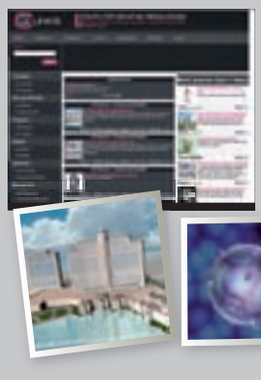
Web: www.cgcookie.com

CG Cookie is a free tutorial site. There's a wide range of how-tos for 3ds Max, Maya, ZBrush and Blender, from creating leather to simulating smoke and fire effects. Not only is it a very useful resource, but the site's creator is also seeking to commission more instructors to submit their tutorials. Why not share your knowledge?

CG Links

Features models, textures, tutorials and more

Web: www.cg-links.com



CG Links is a tidy-looking website that offers a good selection of links to resources for digital artists. Choose from the most popular items down the sidebar, or click on one of the tabs to access the links to free textures, blueprints and models. Visit **www.cg-links.com** for a closer look.

CGvids.com

Free CG video tutorial site goes live

A new video tutorial website has been set up to provide digital artists with visual how-tos on 3D software such as Rhinoceros, Maya, Blender and 3ds Max. At the time of writing, there are about 500 tutorials on CGvids.com, but the site's creator hopes to increase that by uploading new ones every week.

CGvids.com is very well organised; once you have registered, you can pick your software and then choose from categories that include modelling, lighting and texturing. Everything is still quite new, so the ZBrush and CINEMA 4D tutorials haven't been added yet and the forum is pretty eerily quiet. Nevertheless, it is helpful and it is free, which is a recipe for success. Go to **www.cgvids.com** for more.

There are around 500 tutorials on the site so far and that'll be increasing regularly

work in progress

Talking heads

Inspired by Arthur C Clarke novels when he was young, David Hunt wanted to create an older generation of hero; here's his project so far

David Hunt www.slowgolde.com

David Hunt has always had a passion for sci-fi and fantasy. He decided to create an older generation of hero, similar to Clint Eastwood, Patrick Stewart and Paul Newman, as he explains: "I think those guys have/had a presence and physical intensity."

But has Hunt encountered any problems so far in the development? "The main issue I faced was rendering Displacement maps effectively in Maya (mental ray). After a few hours of testing, I eventually got it working with the level of detail I had in my ZBrush sculpt. Although it looked great, the render time was enormous so I decided to just bake out Normal maps."

Check out more of Hunt's work at **www.slowgolde.com.**

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Artist spotlight

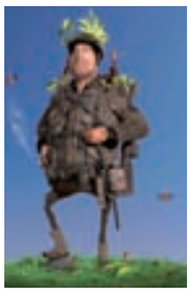
Lots of character

Meet Sven Juhlin. He's a freelance character artist from Sweden with a passion for superheroes

Sven Juhlin www.daybreakcg.com

If you haven't noticed already, Sven Juhlin is a big fan of superheroes; he's also a big fan of space marine characters. He tends to focus on full-body characters, but his speciality is movie and in-game characters. Most of his images take around a week to make, and he uses Maya, ZBrush and Photoshop.

And inspiration for his images? Well, as Juhlin explains: "There are so many talented artists out there, so getting the right inspiration is not hard at all." Check out more of Juhlin's work at **www.daybreakcg.com**.



Software shorts

Get the lowdown on updates and launches

StretchMesh 1.5 unveiled

StretchMesh 1.5 is an updated surface deformation plug-in from KickStand, and will help you with character animation in Maya. With this handy plug-in, you are able to rig complex body movements by giving your polygonal meshes a bit of stretchy characteristic.

Among StretchMesh 1.5's many new features is its increased speed in Maya 2009 via multithreading. Check out the site at **www.kickstandlabs.com** in order to get more information.

V-Ray Scatter 2.5.5 is here

If it is your job or even hobby to produce realistic and complex 3D scenes, then V-Ray Scatter 2.5.5 – an updated plug-in for 3ds Max and V-Ray – could be just the program for you. As well as offering full support for 3ds Max 2010, included among V-Ray Scatter 2.5.5's other new features are camera clipping and an asset-tracking connection.

Take a trip to the website at **www.vray.com/vrayscatter** for more details.

What's in next issue

Learn how this incredible image was created

Issue 7: on sale 16 September

For more issue 7 info, visit **www.3dartistonline.com**

Tools of the trade

HP XW9400 WORKSTATION

In the market for a new system?

There's no getting away from the fact that this system is pretty pricey. Then again, it's not going to be bought for checking your emails and your Facebook status. The HP xw9400 is a high-end system, made to handle the likes of 3D digital-content creation, multithreaded applications, multitasking and, as HP says, "mega-tasking environments." Sounds impressive!

Its AMD HyperTransport 3.0 technology increases interconnect rates from two gigatransfers per second to 4.8 GT/s. It can handle two Six-Core AMD Opteron processors and it can even be configured with the ATI FirePro V7750 workstation graphics accelerator, too.

If you'd like to read up on the full specs, visit **www.hp.com/uk**.

At just under £3,000 (excluding VAT), the xw9400 is not one for the budget-conscious designers out there

3DArtist online.com

Create your gallery, browse the artwork, chat with experts and artists and get tips and techniques at

www.3dartistonline.com

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Reader's Gallery

Discover more about the artists behind the images on the 3D Artist online gallery

What happens when the troll's heart is melted by the innocent little kitten?

Left: This was built around the chess problem at the beginning of *Through the Looking Glass*. White mates in 11. I used pictures of old men playing chess in the park as a posing reference

Artist info

Michael Ambruso

Personal portfolio site www.tenthousandtadpoles.com
Gallery portfolio site www.3dartistonline.com/user/thesea
Country USA
Software used DAZ Studio, modo

We have a shiny new addition to the magazine this issue, in the shape of these Reader's Gallery pages. Each issue we will turn these pages over to you and use them to catch up with one of the gallery members and discover more about their work, what they create and how they do it. If you haven't already signed up to the gallery site, it couldn't be easier. Head over to www.3dartistonline.com, click the Register link and fill out a form. It's free to do and will only take a few moments. Once signed up you can upload your images for others to see, as well as comment and rate on other members' work.

We kick off with a look at Michael Ambruso's work. His gallery (www.3dartistonline.com/user/thesea) has some real gems in it, combining beautiful 3D art with a great level of humour. Working with a mixture of DAZ Studio and modo for modelling, he merges fantasy and space scenes and creates new and interesting worlds.

What first drew you to 3D? Was it because you admired someone's work or was it something else?
I've always been interested in movies and special effects, especially model making, but *Jurassic Park* completely blew me away with what was possible. Those dinosaurs looked so real! It was years before the technology arrived at the desktop and a bit longer before I had the courage to dive in myself, but the seeds were planted the day I saw *Jurassic Park*. I still like to do the occasional dinosaur picture as a personal homage!

What program did you first use? What do you use now?
My very first 3D program was POV-Ray. I dabbled around creating 3D scenes in code for a few years, but things didn't really take off until I discovered DAZ Studio. I still use Studio for a lot of my work, but I've also branched into Vue Infinite and I use modo for modelling.

Call for entries

Have you been sweating in a badly lit basement with no air conditioning while working on your Pixar-beating animation for the last ten years? Welcome to 3D Artist's Reader's Gallery, where your glorious masterpiece can be revealed to the world. If you want the kind of exposure that a two-page spread and a trailer on the CD can bring, then drop a line to the editor at duncan.evans@imagine-publishing.co.uk. Remember, this is for completed projects, not concepts, showreels or a fevered sketch on a beer-stained napkin – go back four pages to the Community News for that!

> "I've been making pictures of dragons and spaceships since I can remember; I really don't think that will stop"

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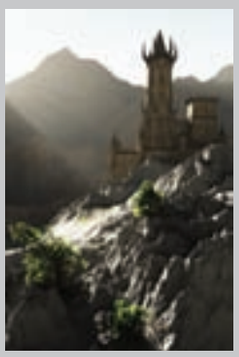
Do you have a favourite style of art?
I've been making pictures of dragons and spaceships since I can remember; I really don't think that's likely to stop any time soon.

What is your favourite piece of personal work?
Usually, whatever I'm working on at the moment. If I had to pick one, it would be *Cyril*, which is a portrait of a unicorn my wife knew as a child.

Do you admire any other 3D artists? If so, who are they and why do you like them?
Waldemar Belwon (Dreamlight) has been a huge influence, as an artist and as a friend and mentor. I'm also a big fan of Stefan Morrell (Stonemason). Everything he does simply amazes me.

Is there one 3D technique that you would love to master?
Modelling is my next big frontier and I'd really like to wrap my mind around ZBrush. So far, I've managed to churn out some fascinating blobs.

What's the best 3D tip you've ever been given or the most helpful thing you've read?
Go buy a copy of Jeremy Birn's *Digital Lighting and Rendering*. That is, quite literally, THE book for anyone interested in learning 3D lighting from the ground up.



Above: A simple render in Vue, this was a study in Global Radiosity lighting and procedural terrain creation inspired by the excellent tutorials at QuadSpinner.com

Top: A portrait of my wife's imaginary childhood friend, *Cyril* was a very special piece. Multiple passes for lighting, reflection and ambient occlusion were rendered in DAZ Studio and then combined with the painted mane and tail in Photoshop

Set up your online gallery

REGISTER AT OUR WEBSITE, UPLOAD IMAGES, CONTRIBUTE TO THE FORUMS

01 Register your details

First click on the Join Now box in the top right-hand corner. Fill in your personal details – the ones in blue are mandatory. Think of a good member name and a password. When you're happy, click Create User. You'll be sent an email with a link. Click this and enter your password to activate your account.

02 Log in

Your account is now created. Every time you visit www.3dartistonline.com, enter your username and password to log in. If your PC or Mac allows cookies, you can store the password and log on automatically. Click the top-left link to access your account. Now click on Add New Image to add some images.

03 Upload pics

Fill in the title of your picture and describe how you made it and what it was for. Pick a category and navigate to the image for the upload. It can be 1,280 x 1,024 max, and must be a GIF, JPEG or PNG. Hit Submit Image. Once we've approved it, it'll be added to the gallery and your portfolio.

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Grand Designs

Company Visualisation One Ltd
Founded 1999
Company website www.visualisationone.com
Country United Kingdom
Software used 3ds Max and V-Ray
Expertise Architectural visualisation
Client list Heron International, Foster + Partners, Balfour Beatty, Lend Lease, Sheppard Robson, BDP, Bruntwood, Darling Associates, Ian Simpson Architects, Londonewcastle, Oakmayne Properties, West Properties

Duncan Evans caught up with Vince Flynn from Visualisation One to discover how the company combines technical and artistic skills to deliver premier architectural visualisation

A *Water Street*
Photomontage of a large mixed-use scheme in Manchester

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Vince Flynn (centre), director of Visualisation One, along with associates **John Crighton** (left) and **Pat Corcoran** (right)

> With over 20 years' experience in architectural visualisation, my responsibilities include the strategic running of the company, client relationships and sales and marketing

Vince Flynn is the founder and director of Visualisation One

Architecture, like any art form, is supposed to illicit a response from the viewer, and nowhere is this more important than in the field of architectural visualisation. An accurate render is not enough – the client needs to feel the building being used or be seduced by the promise of what the building can bring. UK-based Visualisation One is a company that can deliver this in spades. Specialising in photorealistic images and animations, the company produces breathtaking projects that are full of life.

We spoke with Vince Flynn, founder and director of Visualisation One, to find out how it all began.

3D Artist: *Please explain who you are and what your role at the company is.*
Vince Flynn: I'm the founder and director of V1, and have over 20 years' experience in architectural visualisation. My responsibilities include the strategic running of the company, client relationships and sales and marketing. I'm supported by John Crighton and Pat Corcoran, both associates who are responsible for the production and creative output of our 16-strong team. Both have over 11 years' experience in the production of high-end architectural visualisation.

3DA: *When was the company established, and what was the aim when it was set up?*
VF: The company was established

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B

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D

> We have a reputation for producing high-quality interiors for luxury residencies, some with prices of £10,000,000 to £120,000,000

in 1999 with the aim to provide high-end photorealistic images and animations for the property sector. Our priority is quality of image intertwined with excellent customer service, and this ongoing achievement is reflected in the strong relationships we have developed over many years, with approximately 80 per cent of our business coming from repeat clients.

3DA: *What are the main services that you offer and the areas of CGI that you cover?*
VF: We are focused on the architectural, development and marketing sectors. Our services include concept and photorealistic imagery, visually verified montage, animation, marketing films and interactive media. Over the last few years we have developed a reputation for producing high-quality interiors for luxury residencies, some of which have purchase prices ranging from £10,000,000 to £120,000,000.

3DA: *Is there a particular style or ethos that you bring to your projects?*
VF: Our aim is to marry the technical requirements, such as architectural detailing and interior design, with artistic concepts, like light, composition and texture. We believe this allows us to communicate a piece of architecture in a realistic and positive way.

3DA: *Who are, or have been, some of your main clients?*
VF: We are fortunate to have a great list of repeat clients, which includes Ian Simpson Architects, Heron International, Darling Associates, Balfour Beatty, Sheppard Robson, Oakmayne Properties, BDP, West Properties and Londonewcastle.

3DA*: Do you tend to work more in industry visualisation, commercial, residential or is it an across-the-board approach?*
VF: Our work spans all sectors within the property industry, from commercial to luxury residential, cultural to education. At the moment, the education and luxury residential sectors are buoyant. We are hopeful that the depressed commercial and traditional residential markets will strengthen in the near future, especially in regards to planning applications.

3DA: *What is the most interesting or rewarding residential project you've worked on?*

B Based in Chester in the Northwest of England, Visualisation One produces all work in-house and this allows it to have full control of its output

C Embassy Court entrance at dusk. This project has also led to a number of commissions from some of the world's leading developers and designers on some amazing luxury projects, not just in the UK but worldwide

D A marketing image for a luxury residence in London, completely CG-animated

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Key Project

Deptford, London, UK

Client AAVA Architects

A contemporary development of 56 apartments over commercial space in Deptford, London, UK. This was a fairly small project consisting of just two photomontage images for planning, but I think the design is excellent. Produced over a five-day period, the building's relationship with the adjacent bridge and surrounding buildings was of importance. First of all, we produced test images to check and view the positioning, and together with the architect we accompanied the professional photographer on site in order to ensure that we got the right shot from the correct position, as our deadlines were extremely tight.

This image, together with three more of our images, was selected for publication in Ballistic Publishing's art book *EXPOSÉ 7*, gaining an Excellence class in the category of External Architecture.

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> “Education projects typically have very tight deadlines, and a smooth flow of information from the various parties is critical”

E Hero shot of a new office development for Bruntwood at 1 New York Street, Manchester, part of a large marketing commission

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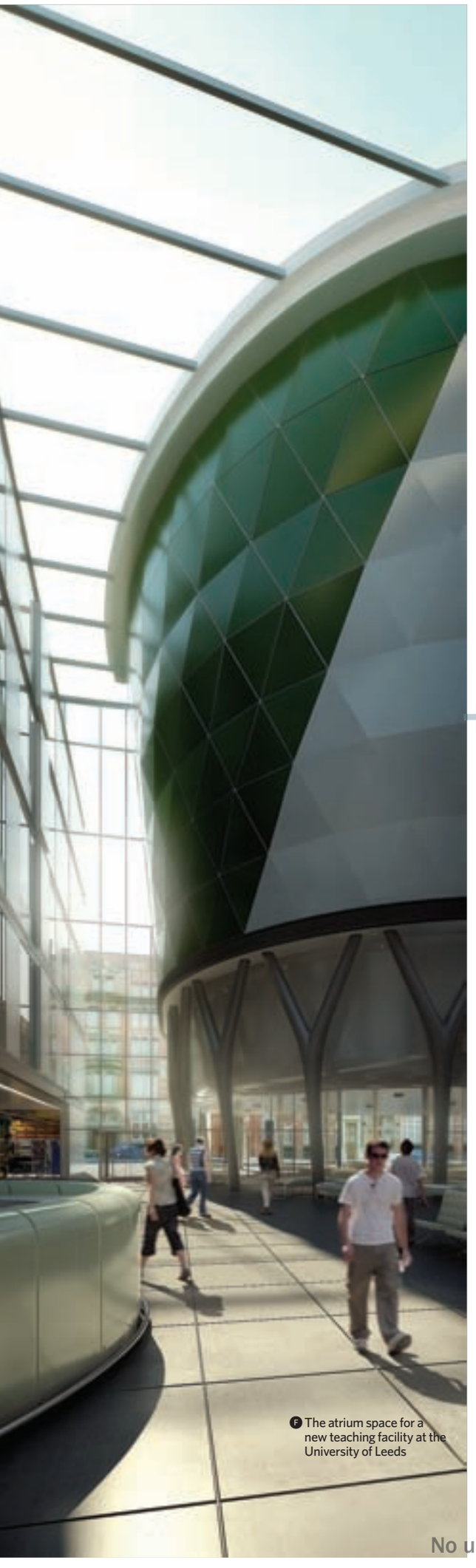

F The atrium space for a new teaching facility at the University of Leeds

G

H

VF: It has to be Embassy Court in St. John's Wood, London, for Oakmayne Properties and Londonewcastle. It comprises 25 luxury apartments and is the first new building block in St. John's Wood for many years. We were commissioned to produce a number of photorealistic still images to communicate the luxury interiors of the penthouse apartments designed by Darling Associates for marketing purposes.

3DA: *One of your projects was related to a school. Were there any special considerations you needed to make for an educational project?*
VF: We have been working in the education sector since the inception of the Public Finance Initiative (PFI) ten years ago, and with the more recent Building Schools of the Future (BSF) procurement method we have a huge amount of experience, having produced visuals for over 200 schools.

There are several key elements that need to be considered and reflected in successful educational visualisation, including architectural detail and landscaping. Educational requirements, such as ICT and furniture provision, are also key as they form part of the contract. Any incorrect embellishment can lead to the image losing its integrity, casting a doubt over the accuracy of the bid. Education projects typically have very tight deadlines, and a smooth flow of information from the various parties is critical, while experience is delivering this type of project is essential.

3DA: *Do you use different tools for these differing products, for example, Maya for animation and 3ds Max for still images?*
VF: We use 3ds Max for our modelling and V-Ray for rendering, while we use Photoshop, Combustion and After Effects for postproduction and Premiere for editing.

3DA: *How many people typically work on an in-house project?*
VF: It varies from two on smaller schemes (containing two to four still images) to between four and eight on larger animation/multiple-still projects. All projects are overseen by either John or Pat, but we encourage our visualisers to take ownership of an image and produce each stage, such as modelling, lighting, texturing and postproduction.

3DA: *Can you give us some idea of the actual production pipeline for producing an image or set of images for a client?*
VF: After obtaining a detailed brief from the client, we then receive and collate the required information, such as drawings, 3D models, sketches and reference photos. We develop a low-detail white model and issue for viewpoint confirmation. Once we receive confirmation (and any comments to act upon), we move to the detailed model

G A school circulation space. Visualisation One has been involved in the education sector for ten years, producing visuals for over 200 schools

H An external shot of a new school. The ability to clearly communicate the design and excite a nontechnical audience is imperative. Accurate images aid this

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Key Project

Cornwall Terrace, London, UK

Client Oakmayne Properties **Architect** Darling Associates
Interiors Nicholas Haslam

A magnificent terrace of Grade I listed Nash buildings at Cornwall Terrace, located in the heart of Regent's Park, overlooking the rowing lake. As part of our continuing relationship with Oakmayne Properties, we were commissioned to produce various interior images and walkthroughs to clearly communicate the quality and style of these stunning properties.

Working closely with Darling Associates and Nicholas Haslam, the world-renowned interior designer, we produced 3D models and work-in-progress images of each space showing the architectural elements, such as plasterwork, woodwork and finishes, ensuring that all finishes and materials were correct. Once these items were approved, the interior design items, such as furniture, lighting and accessories, were added with great emphasis given to the composition and lighting of the images. Very little postproduction was required for the final images, so that when it came to animate the spaces there was very little additional modelling work to do, which allowed us more time to concentrate on travel paths, effects and editing.

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I

stage and develop lighting and materials. At regular intervals we issue work-in-progress images for comments and refine the image until it is complete.

3DA: *Are there any special flourishes that you like to add to a project that defines it as coming from Visualisation One?*
VF: Accuracy, detail and quality. Our main aim is to provide the most realistic and convincing representation of the scheme in question on time and within budget.

3DA: *A lot of your work is based in the UK. Are you bidding for work outside of the country, and are you involved in any of the Gulf States projects?*
VF: We are working abroad, but most of our work is in the UK. We are looking at the Gulf States, but the market is depressed and oversubscribed at the moment.

3DA: *The building and visualisation industries have both been detrimentally affected by the recession. How have you found market conditions and what are you doing to counter this turndown?*

J

VF: The economic downturn has had a detrimental effect on market conditions especially in property development and we, like everyone else in architectural visualisation, are not immune. We have seen a dramatic downturn in the commercial and traditional residential sectors but the luxury residential is still strong and there is high demand in the education sector, however clients are looking at costs and budgets are getting tighter. We are quite lucky with the relationships we have developed over the years and we are helping our clients where possible, as retention of existing clients is essential as is keeping our team together. We are getting quality enquiries as usual though recommendations from existing clients and we are developing this into new work but it is slower than previous years. Overall I'm optimistic for the future.

3DA: *What are your plans and ambitions for the company in the future?*
VF: To retain and develop our existing relationships and increase our reputation for quality, value and customer service within the marketplace.

I Cornwall Drawing, part of the Cornwall Terrace project (see more information on the left). This image also featured in Ballistic Publishing's EXPOSÉ 7 book, as did the Deptford image (page 29), which picked up an Excellence award

J The external view of a luxury residence called Heath House

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Making money from your 3D art

> Demand for 3D is quickly escaping the domains of Hollywood film studios and finding unexpected insurgence into both corporate and hobby arenas. Not only does this create new opportunities for employment, but it also presents unique options for those skilled at their 3D craft to make money by supplying these growing areas

Playing with 3D software is great. Making money with it is even better. Mark Bremmer reports

Sold in a single format, this Honda Pilot model available at TurboSquid limits its audience, but there's always someone out there who'll be interested

This expanding market is fertile ground for part-time and full-time content providers, as 3D itself is not particularly quick to learn and even slower to become highly fluent in. Cap that off with increasing program complexity, universally tight schedules, tighter budgets and suddenly there is a huge market that simply needs to acquire content for use rather than creating it.

Models, props and the communities

"So, how do I decide what to make and how to sell it?" A simple question with a complex answer. With a very broad brush, your analysis can be broken into three categories. What audience suits what I offer? How will it be used? What do they already have access to?

Audience

This may be a wider market than you first suspect. Ready-made or stock 3D assets are finding a welcome reception for consumers, ranging from real estate, courtroom/legal, civil infrastructure, government, aerospace, historical, medical, industry, trade show, gaming, techno hobbyist, 3D software creators, music and, of course, television, film and video markets.

"Is any one audience better than another?" No. Even though members of all these audiences may visit the same online stores, some audiences, like aerospace or TV and film, pay more per asset purchased but have a very limited scope of buyers and typically have a very high standard for realism and accuracy. Others, like the hobbyist market, have a low price point per sale but have a huge, largely untapped market. All these markets pay – and pay quite well. It then becomes a question of your individual skill set and familiarity with the market space. Creating a model of a human heart but not understanding biology is probably not a good idea.

The hobbyist market is one that many 3D software providers are aggressively pursuing now, as evidenced by e-on

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This model and the two to the left are all from the author's stock. By varying your style, you appeal to the widest possible market and stand to make more profit

software (Vue), DAZ 3D (Carrara, DAZ Studio), Smith Micro (Poser) and others. DAZ, according to its own publicity, has a user base of over 100,000. A little simple maths of one $10 sale per user per year makes for a rather tidy sum. In fact, many content providers, because of their quality or subject matter, cultivate fan clubs that are repeat buyers.

Do you also have the skills to program? Does maths not scare you? Plug-in creation is a wide-open market, as it requires the programming knowledge plus an understanding of the needs faced by individual 3D software packages. Many software developer kits (SDKs) are available free for this very reason.

How will it be used?

Do an honest appraisal of your skills and create accordingly. There is only one thing worse than spending a load of time creating content, and that is spending all that time and not generating sales. 3D users are piranhas looking for good CG food and they can quickly disqualify unsuitable products. Texture resolutions and polygon counts need to reflect its intended use. Some online stores for the hobbyist/professional user, such as Renderosity (www.renderosity.com), have testers that pass each product through a reality check to see if it does what it's supposed to and that the help files actually help. Other stores don't, which can translate to a bad product/author reputation and a vendor nightmare when handling issues.

What do they already have access to?

Be an investigator. At first look on the web, it may appear that everything ever needed has already been created. It's not true. The hobby market's online stores as

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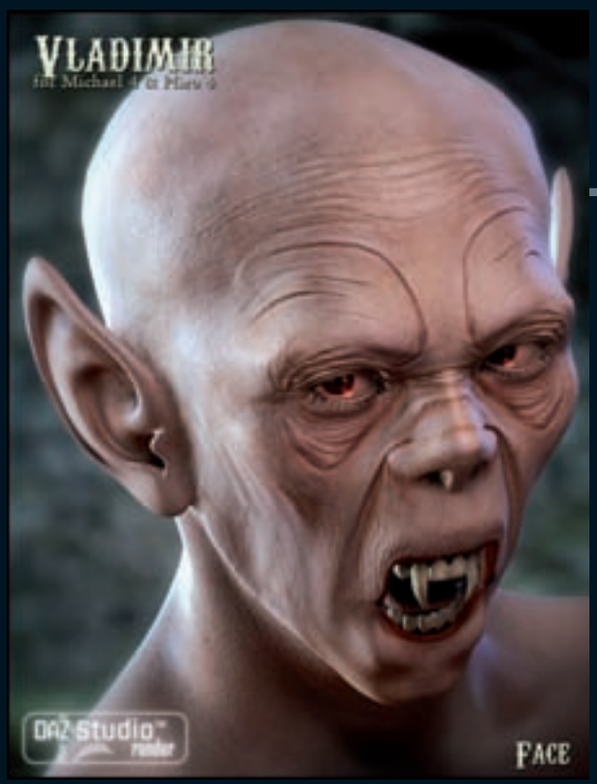
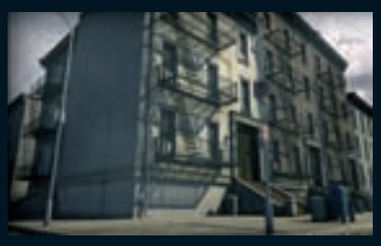
« *B-1B Lancer*
This B-1B Lancer is from the stock catalogue from Mesh Factory (**www.meshfactory.com**) and can quickly be added to aviation scenes





» *DAZ Vladimir*
DAZ's market attracts artists who utilise existing content and sell morph targets, further extending the investment CG artists may have already made

« *DAZ Stonemason*
At DAZ 3D, artist Stonemason produces highly detailed city and space interior scenes in OBJ format, making them accessible to many pieces of CG software

> "Don't price yourself out of the market when releasing a product. Research similar items, and price accordingly"

+ well as the professionally targeted sites, like TurboSquid (**www.turbosquid.com**), The 3D Studio (**www.the3dstudio.com**) and others, provide commenting systems and/or user forums. Even though there may be 55 Airbus A310 models found on the web, it doesn't mean that they are good or meet the needs of the user. Do users complain that the polygon count is too low, that there aren't enough major airline texture maps, that the texture map resolution is too low for print images or that it's not rigged for animation in their software? If they do, then make sure you offer a better option. In product creation, gripes equal opportunities. Regarding quality, there is always room at the top. In the case of accessorising existing things like DAZ or Poser characters, it can be as simple as finding that there is no business district street scene or no well-used construction helmet.

"Can I make money doing this?" Yes. But expect between a 60/40 to 70/30 split on profits, with the store taking the lion's share. This is normal for retail relationships in both brick and mortar or online stores. Even so, there are 3D vendors that make tens of thousands of dollars per year – and some who make almost nothing, too.

Making it real

While 3D artists create in a virtual 3D world, it's now more possible than ever to bring that virtual environment to life. Known as 3D printing or rapid prototyping (RP), both mechanical-looking and organic CG models can make an appearance in the real world. While attending SIGGRAPH 2008 last year, we spoke with representatives at Z Corp (**www.zcorp.com**), manufacturer of an outstanding 3D printer series. It indicated its equipment is used by several production houses that exclusively provide scale models for players of *World of Warcraft*. Proud of your battle-worn Orc? These vendors can produce them. However, it's so popular, there is a six-month waiting list for the characters and they are purportedly priced around $100 USD each.

But that's just the tip of the proverbial iceberg. RP has been around for some time. The difference is that now the technology is becoming more ubiquitous and the costs associated with producing real objects from virtual 3D scenes is

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» *Petrol Station*
Available from the Exchange 3D site and perfect for all sorts of uses

« *IXUS 430 camera*
3D Revolution specialises in realistic interiors and objects. This camera is beautiful to look at but has limited appeal for all but specific advertising imagery

» *Container*
This humble cargo container is one of the top-selling items on Mesh Factory

« *High-definition city*
This high-definition city by ES3DStudios is available at TurboSquid, ready in 3ds Max format, providing a rich, multi-use potential

» *DAZ catsuit*
DAZ 3D attracts mesh artists for character, object and accessory models, like clothing

coming down. Note that we didn't say it wasn't cheap, though. Once in the realm of tens to hundreds of thousands of dollars, these 3D printers are now much more financially accessible. Desktop Factory (www.desktopfactory.com) offers a 3D printer for as little as $4,995 USD. A hefty decrease when comparing historical numbers. But like other desktop 2D printers, there are consumable costs to consider as well.

What is new is that companies are realising that there is a market beyond industry that is a good fit for this technology. Shapeways (www.shapeways.com) is one such company, based in the Netherlands, that caters to creative circles who are familiar with 3D but are interested in producing consumable items and selling them through an online store. Not only does Shapeways produce the rapid prototype objects that users create, but it has also established an online store system, allowing customers to market their wares after creating them. Unlike other RP websites, Shapeways is very customer-centric and is geared towards newbie users looking to create and sell their 3D creations.

Not only market them, but it provides some ready-made products that users can customise themselves. These objects are things like (don't laugh – they look awesome) napkin rings, where the ring is

Manufacturing materials

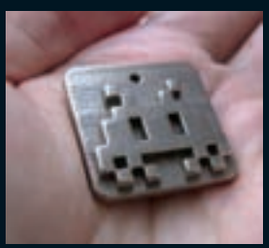
Materials affect not only the look, amount of detail and thickness of walls that can be reproduced, but also survivability if there are moving parts or live hinges. Detail, while affected by the material, is also dependent on the RP machines being used – just like the resolution of standard 2D printers.

Various RP providers use very similar materials, but sometimes they have private-label names so that they are more easily specified instead of sounding like a chemist. However, there are basic areas that certain chemical materials perform better in, so 3D artists need to be their own advocates and be knowledgeable: polyethylene – semitransparent, good flexibility, impact strength and snap-fit needs; polypropylene – grey to off-white, good for functional uses and withstands impacts; polycarbonate – clear but can be coloured, rigid.

Depending on the RP machines in use, build envelopes can change from 10cm to 300cm. Would you like to electroplate your object with chrome? Stick to the rigid materials.

To further complicate things, some manufacturers use the same chemical terminology but are using modified materials or providing a sealant coat to allow final shapes to be painted. Not all materials are tolerant of humidity or liquid.

Since these items aren't created for mere pocket change, it is best to contact the RP house and describe your needs to get its recommendation. It wants you to be happy with the results but communication is the key.



This painted bronze sculpture created at RapidPro.com is one of many that the RP shop sells itself. However, CG artists can have their own work produced here, too

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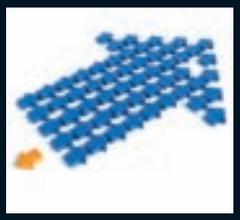
Stock search tips

It's time to take off your 3D author hat, put on your art director hat and imagine what a user might use as search terms when tracking down image candidates. Along with using the obvious subject matter tags, also consider colour palette and descriptive adjectives, like 'clean,' 'reflective,' 'monochromatic,' 'modern,' etc. For example, if you create an image that is about shoring up a weakening economy that shows a currency symbol with construction equipment around it, the image tags might include any of the following: lira symbol (dollar, etc), scaffolding, construction cranes, building, repair, economy, tiny people, business, bolster, restoration, planning, engineering success and others.

Not only will this help users looking for financial articles, but it can also reel in buyers looking for imagery about managing construction costs, expense of civil project development, preservation and more.

» Search sense
Have a look on iStockphoto and get a feel for what kind of search terms people add. Also check out what the most popular images are

» Arrows
Images that have multiple interpretations are more successful than others. This image can be about inspiration, choosing a different path, nonconformity or even herd mentality



comprised of a sentence of your choosing that spirals around, forming a cylinder but with open voids where the letter forms are empty. In looking at some of Shapeways' ready-made products, it's easy to reconsider functions in your 3D software in the context of making innovative objects. While the RP objects are confined to a variety of polymer mediums, Shapeways also provides services allowing the resulting RP objects to be used in mould creation so final objects can actually be cast in stainless steel.

However, before you squeal with delight and grab your most recent 3D creation and send it off for manufacturing, there is a new world of requirements to learn about.

> "We have many vendors who make their living solely on income from selling 3D content at Renderosity"

Most 3D modelling software is known as surface modellers versus a solids modeller. What's the difference? CAD-based engineering software like SolidWorks and ProEngineering are designed to create objects for the real world and are optimised to generate genuine solid objects. They respect volumes and automatically create what are known as manifold or watertight objects – that is, all seams are closed. Surface modellers are more concerned with how things look and imitate objects for the real world. Therefore, it is possible to create things that appear to the eye as real, but actually have holes in them.

Models used for RP must be manifold objects. In addition to being manifold, the surface normals must all be pointing outward. While Shapeways specifically supports only a limited amount of 3D software natively, if your 3D package exports to Collada or STL (stereo lithography) formats, most RP companies will be able to handle the files produced.

Materials and the size of your real-world 3D objects are determined by the actual RP provider. Shapeways is targeting "curious" and novelty 3D users, while also focusing on smaller object sizes. However, RP is a wide playing field and is used by industry professionals to mock up full-size prototypes. For example, companies like RedEye (www.redeyeondemand.com) create full-size objects that can be assembled. Build envelopes (think bounding boxes) can approach one metre cubed. Not only can real-world-sized objects be made, but materials like rigid plastics, rubbery elastomeric, clear and translucent objects can be made. Many of these methods can also be painted, dyed or finished to imitate metal. Many of the materials are waterproof.

How much does it cost to produce 3D prints? There is no standard yet. Shapeways ranges from $2.70 to $1.60 per cubic centimetre, but that includes shipping. Users need to have a little due diligence in their searches. RP manufacturers that cater to big business do not want your RPG character and will let you know with their prices.

» Logos
Don't go crazy with imaginative concepts. Business sectors love simple, clear images like this

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Best online resources

The 3D Studio

Website www.the3dstudio.com

The 3D Studio is a perfect place to start your money-making quest, be it for research or selling. There are over 300,000 resources for you to explore, giving you a prime overview of what other models are already out there. If you decide you want to sell, set up a free account and start adding your resources. It's free to sell, you get paid monthly and keep 60 per cent royalty on any sales – one of the highest rates out there. The company will handle customer support and technical issues and will even export models out to different formats at no additional cost to the customer or you. To get more information on how the service works for sellers, check out our review next issue.

Websites worth a look

There are many websites where you can sell your 3D objects, scenes, models or textures. We've picked out some of our favourites but make sure you check each one for the terms and conditions:

www.3dcommune.com

www.3drevolution.org

www.contentparadise.com

www.cornucopia3d.com

www.daz3d.com

www.exchange3d.com

www.meshfactory.com

www.renderosity.com

www.the3dstudio.com

www.turbosquid.com

www.3dexport.com

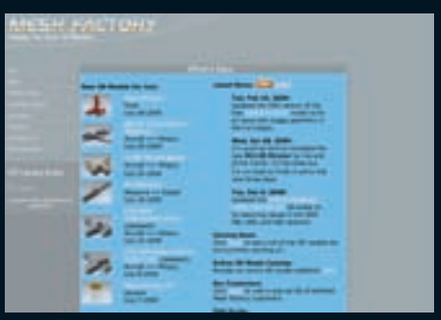
www.3dmodelworks.com

3D Revolution Studio

A beautiful site full of high-end renders covering subjects such as architecture, medical, animal and even some tutorials

Content Paradise

Online marketplace that has its own management tools to help you set up shop quickly and easily



Mesh Factory

A great selection of professional 3D models. Items can be bought as part of a subscription or on an individual basis

Renderosity

Renderosity has its own marketplace for sellers to tout their wares. With over 330 million hits a month, it's a good place to start

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Duncan Evans talks to Prime Focus about the company's work on the new John Woo film, *Red Cliff*

Primed to strike

Company Prime Focus
Founded 1997
Company website www.pflplc.com
Country USA
Expertise Visual effects postproduction, previsualisation, look development, custom R&D solutions
Client list *Superman Returns*, *Swordfish*, *Storm of the Century*, *Paycheck*, *Silent Hill*, *Resident Evil: Apocalypse*, *The Italian Job*, *Stay* and *Idlewild*
Software used Maya, 3ds Max, Fusion, Massive Software and SynthEyes

> "Prime Focus's CG-animated fire, water and smoke is among the best in the business. We also have a Massive software pipeline and our render farm can handle it all in very short order"
>
> **Mike Fink** president of Visual Effects

Slow-motion dives, intense, stylish action and a message of comradeship under fire; yes, it's the return of director John Woo with *Red Cliff*, back in Asian cinemas after his Hollywood years with *Face/Off* and *Mission: Impossible II*. In Asia, *Red Cliff* premiered in cinemas in two parts, clocking in at four and a half hours. The first part was released back in July 2008 to huge critical acclaim and box-office success, while the second half – on which Prime Focus worked – was released in Asian cinemas in January. For the recent Europe and US release, the entire epic was boiled down into one sweeping two-and-a-half-hour film. The film itself takes its title from the historic Battle of Red Cliffs and other events during the end of the Han Dynasty and immediately prior to the period of the Three Kingdoms in ancient China.

Prime Focus, formerly Frantic Films, is a visual effects company with offices in Los Angeles, Vancouver and Winnipeg, and is part of the Prime Focus Group. It was brought on board for part two of *Red Cliff* and was given an important part of one of the main battle sequences of the second film. Prime Focus was also tasked with creating the entire environment surrounding a massively destructive attack waged on an enormous fleet of ships – all within a very truncated eight-week production schedule.

We spoke to Mike Fink, president of Visual Effects, Jane Sharvina, VFX supervisor, and Jason Crosby, VFX supervisor, about bringing the epic to life.

Ⓐ Director John Woo made many suggestions and asked for changes, as all directors do

Ⓑ By the time this issue of **3D Artist** hits the shelves, *Red Cliff* will be the film on everyone's lips

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3D Artist: *Why was Prime Focus called on for the second part of the film after not being involved in the first part?*
Mike Fink: There are just some production decisions that we have no knowledge of and this is one of them. Being called upon to work on the second part of the film might be attributed to the fact that Prime Focus grew to be twice as large by the time we were awarded work, compared to when *Red Cliff* first began. We just didn't have the capacity at the time the film started.

3DA: *What skills or resources does Prime Focus have that persuaded filmmakers to make the call?*
MF: Our CG fire, water and smoke is among the best in the business. We also have a Massive Software pipeline and our render farm can handle it all in very short order.

3DA: *Who designed the components for the boats originally, and what historical references were used to create these?*
MF: The boats were designed by production using Maya. We received models and some textures for them, which I believe were done at The Orphanage. We did very little modelling ourselves, although we did extensive work on the textures so they'd work within our shots.

3DA: *How did you get any kind of variety into the boat shots with them essentially having the same kind of design?*
Jason Crosby: With shots that called for a fleet of 2,500 of the same 26-metre boat, giving each of the boats a unique 'hand-crafted' feel was both a creative and technical challenge.

3DA: *Can you give more details on why you used Cebas's finalRender rather than any other rendering solution?*
MF: We used a combination of renderers to complete the film. finalRender worked for some of it, V-Ray for other parts, and our own proprietary renderer Krakatoa was used for most of the volume work.
JC: The fact that we had eight weeks to do the whole job was quite a challenge. Furthermore, our scenes consisted of hundreds of millions of polygons of geometry. With so many elements shadowing, reflecting and overlapping each

C The film stars Tony Leung Chiu Wai, Takeshi Kaneshiro, Koyuki, Shido Nakamura, Chen Chang and Fengyi Zhang

D *Red Cliff* is the most expensive Chinese-language picture ever made, being a co-production of China Film Group, South Korea's Showbox Entertainment, Taiwan's CMC Entertainment group and Japan's Avex Entertainment

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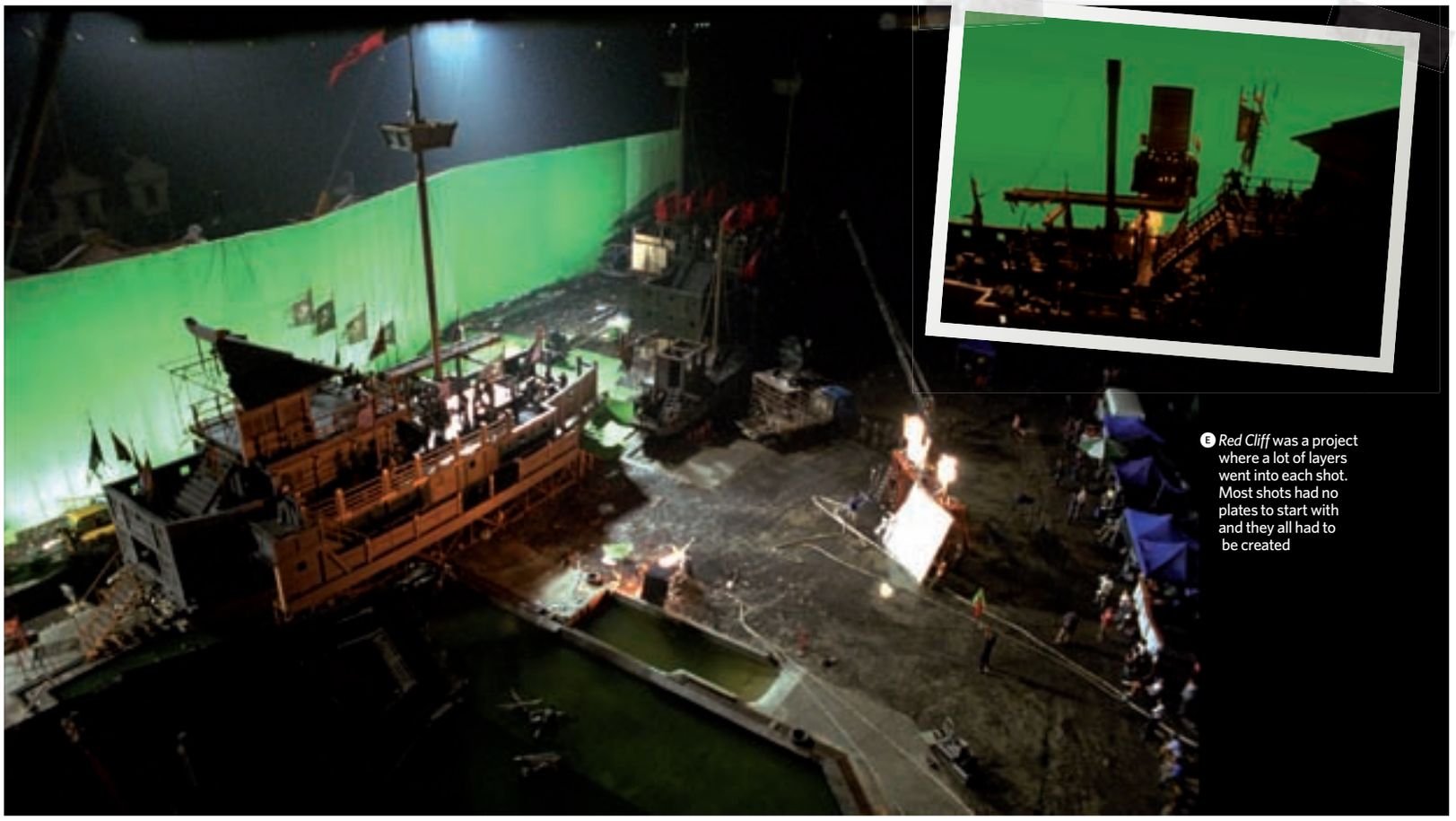

Ⓔ *Red Cliff* was a project where a lot of layers went into each shot. Most shots had no plates to start with and they all had to be created

> "We started with base beauty renders of the fleet that we augmented with hundreds of little torches and interactive lighting from them"

other, it made breaking the renders down into smaller chunks difficult. Using conventional instanced geometry wasn't a good option because we wanted each boat and crew to look somewhat unique. Cebas's finalRender allowed us to vary scale, speed, start frames, textures and other things on instanced geometry. Thinking Particles was used to randomly pick from these instances to build each unique boat. This allowed us to render everything except the water in single passes without exceeding the RAM limit, which saved a tremendous amount of time and allowed us to assemble and update scenes quickly.

3DA: *Can you go into more detail on how you created the water surfaces for the boats, animated the water and used Flood for wave interaction and people jumping into it? How did that tie together with the Massive and Thinking Particle systems that were used to propagate the soldiers throughout the fleet and the actions of the boats?*
Jane Sharvina: We created a library of boat wake and splash simulations in Flood to use for the project and then attached them to the timing and animation of the action for each shot. Water waves and interaction were simulated in Flood and then attached to the boats animated in Thinking Particles. We also incorporated CG fire and smoke as well as the Massive sims for the soldiers. This allowed us to be able to render everything in the same renderer for all of the interactive lighting and reflections that were needed.

3DA: *You use some propriety tools for the water dynamics? What advantages did they offer over standard commercial tools?*
MF: All the water tools were proprietary. They offer the advantage of our owning the source code and having a crew available that knows the software inside and out. Not to mention that it yields superior results, in my opinion!

3DA: *How did you collaborate with The Orphanage in practical terms for getting your footage and shots through to them?*
MF: Our shots were separate from The Orphanage's ones. We did receive models and textures from them and some shots of theirs were completed when we started, which helped us in seeing the 'look' we had to move toward.

Ⓕ The sheer number of boats in the pivotal battle scene in *Red Cliff* meant that each had to be different to the next, as audiences pay far more attention to detail these days than they used to

Ⓖ All the completed shots were sent to The Orphanage via FTP to be reviewed by VFX supervisor Craig Hayes, who was working in Northern California, and then to John Woo for the director's final approval

Ⓗ Flood, a fluid dynamics software, was used for wave simulation and interaction

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G

H

I

3DA: *Can you explain a little more about the compositing process for the scenes that you created?*

JS: We started with base beauty renders of the fleet that we augmented with hundreds of little torches and interactive lighting from them, as well as moon rim lighting passes, fireballs and smoke. We also created gusts of embers flying off the torches on the ships using eyeon Fusion's particle system; this really helped sell the presence of wind. The extensive 'forests' of fire were built with shot elements placed on cards in Fusion's 3D system. This was great to be able to interactively do in comp since some of the shots required hundreds of elements to engulf the fleet. We also incorporated blowtorch elements to make the fire jump from ship to ship, as well as CG-simulated fires and explosions when ships crashed.

3DA: *Did director John Woo or VFX producer Jack Geist make any suggestions or amendments to the scenes that Prime Focus produced? If so, what were the suggestions and why were they made?*

MF: John Woo, as the director, made many suggestions and asked for changes as we worked, as all directors do. It would take a book to list them all. Generally, they involved comments about the amount and size of the fire and smoke, the speed of the boats, brightness of the sky, reflections in the water – things like that.

Craig Hayes did a great job guiding us towards a look that John would like, and our comments from John were then easily accommodated within the work.

Jack Geist, while very helpful as a producer, kept his involvement to the production side.

J

I During the Battle of Red Cliffs, over 2,000 ships were burned, so a task was on Prime Focus's hands before work was even begun!

J The night-time scenes illuminated by fire really adds to the drama

Further info

Red Cliff is in cinemas now and will be released on DVD in the UK on October 5th. The two-film version is available on import.

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Step by step: Create a man of steel

Pixologic Superhero 2009

“I was commissioned to create a superhero for Pixologic’s Action Hero Contest. I opted for a stylised image that would convey strength and power”

Jeff Miller is a freelance character artist

The commission brief was pretty wide open. Pixologic wanted an iconic superhero in several different poses to be used for banners announcing the contest, as well as to illustrate the rules pages. It sounded great. The only catch was that I only had around a week to do everything! I knew that I would have to work efficiently. It provided a few examples of what it wanted, so I took those as a starting point and created a character that embodied the basics of what it means to be a superhero.

Since it was for Pixologic, I used ZBrush as the primary program for modelling, texturing and posing, while I turned to 3ds Max for the rendering process. Sometimes deadlines are too tight to start everything from scratch, so I used a base male body that I had made previously as a starting point. After working in the industry for a while, you tend to build up quite a library of parts that make it easier to work quickly and focus your energy on the areas that are unique to a particular character.

01 Reuse rather than rebuild

When I knew what I wanted to create, I looked through my library of parts to see what I could use to streamline the process. I had just made a boxer body that had a pretty good anatomy to start with, so I decided to use that as a starting point. I brought it up in ZBrush and jumped down to the lowest level so I could do some large proportion changes. I wanted the superhero to be fairly stylised compared to the boxer, so I played with the form for a while until I was happy with the silhouette.

02 Change the style

Now that I had my proportions more in line with what I was looking for, I needed to stylise the details and features. I smoothed out much of the detail and made what was left

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

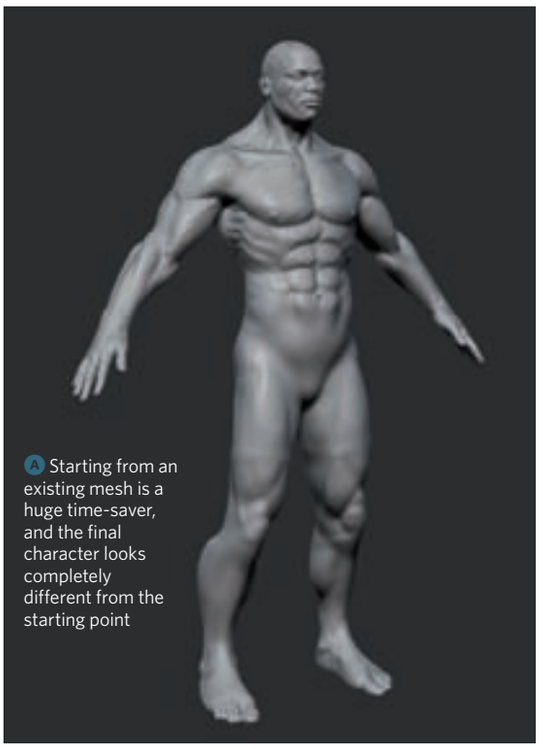
Jeff Miller

Personal portfolio site www.thenewred.com

Country USA

Software used ZBrush, 3ds Max, Photoshop

Expertise Character modelling, texturing and rendering



A Starting from an existing mesh is a huge time-saver, and the final character looks completely different from the starting point

B I shot angular lines and exaggerated proportions, while still keeping some realism

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> After a while in the industry, you tend to build up a library of parts that make it easier to work

Software used in this piece

ZBrush | 3ds Max | Photoshop

On the Disc

ZBrush Alphas
You'll find the Alphas used in the creation of this image

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Modelling the superhero

I wanted a suit that would be skintight, so that he would be easy to pose. Due to the time constraints, I tried to stay in my comfort zone on this one, so I didn't go overboard with making a stylised image. As I sculpted the character, I was already thinking through the issues I would face when I got to the detailing phase. I wanted to use tiling Alphas to give detail to large areas without having to sculpt everything by hand. I made sure all of the meshes contained evenly distributed quads, so I would have enough geometry to work with as I subdivided the mesh. I also made sure the topology would make for easy posing.

more angular and exaggerated. The biggest area to change was the head, so I spent quite a bit of time working on that. I knew that most of his face would be covered with a mask, so I paid close attention to the lower portion of the face that would be exposed.

03 Base meshes in Max

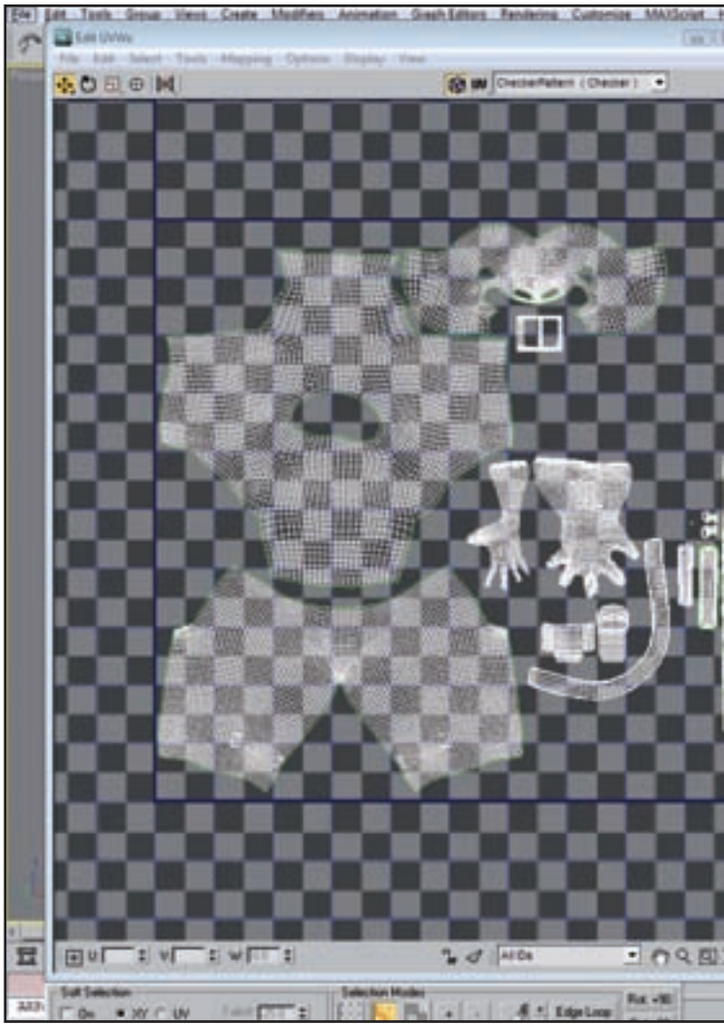
Before I detailed the suit, I decided to make the additional costume pieces in 3ds Max, so I exported out a mid-level subdivision of the hero from ZBrush. In 3ds Max, I then applied an Optimize modifier and collapsed the stack. For the harness and belt, I used the PolyBoost plug-in, which allows you to build geometry that conforms to an underlying mesh. I poly modelled the boots and used splines for the laces. I finished up the buckles and pouches and exported it all back to ZBrush.

C The key to a ZBrush-friendly model is keeping everything in quads and having an even distribution of the topology

04 Where's my suit?

The fun part was detailing the costume in ZBrush. Using lots of good and bad references of people in spandex, I started to paint in wrinkles on top of the muscles. I found that the Clay and the Slash 2 brushes were good for this. I masked out where the seams were in the suit and inflated them. I didn't want the trousers to look as tight as the shirt, so I gave the wrinkles more volume. Now that I had the basic wrinkles in place, it was time to break up the body into separate subtools so that I could subdivide a few more times without the poly count becoming an issue.

D Create a morph target before you begin major changes, so you can revert back if you don't like the results you are getting



E

05 Cut it up

I hid various parts of the mesh and created poly groups for the torso, the gloves and the upper and lower legs. I used the Group Split function to split them into separate subtools. I deleted the lower legs since I made boots in 3ds Max, then I was able to subdivide each subtool a couple more times. I continued to add detail to the newly created subtools, and then focused on the base meshes of the gear I made in 3ds Max, using the same brushes I used on the suit. I brought everything to the same level of completion and prepared to add the final details.

06 Changing gears

Before I started on the suit pattern, I decided it was best to unwrap the models so I could save Alphas that I created to use in the texturing. I placed all of the models at their lowest subdivisions into 3ds Max and use the Pelt Mapping and Relax tools to quickly lay everything out E. I put almost all the parts on the same map, including the face. Later, I decided that the face needed more resolution, so I ended up giving it a map by itself. I imported the newly unwrapped meshes back into ZBrush and continued where I left off.

07 Alphas and masks

I masked out star shapes on his chest and shoulders, then I pressed the Create Alpha button under the Masking tab. This created a black-and-white Texture map that I could use to

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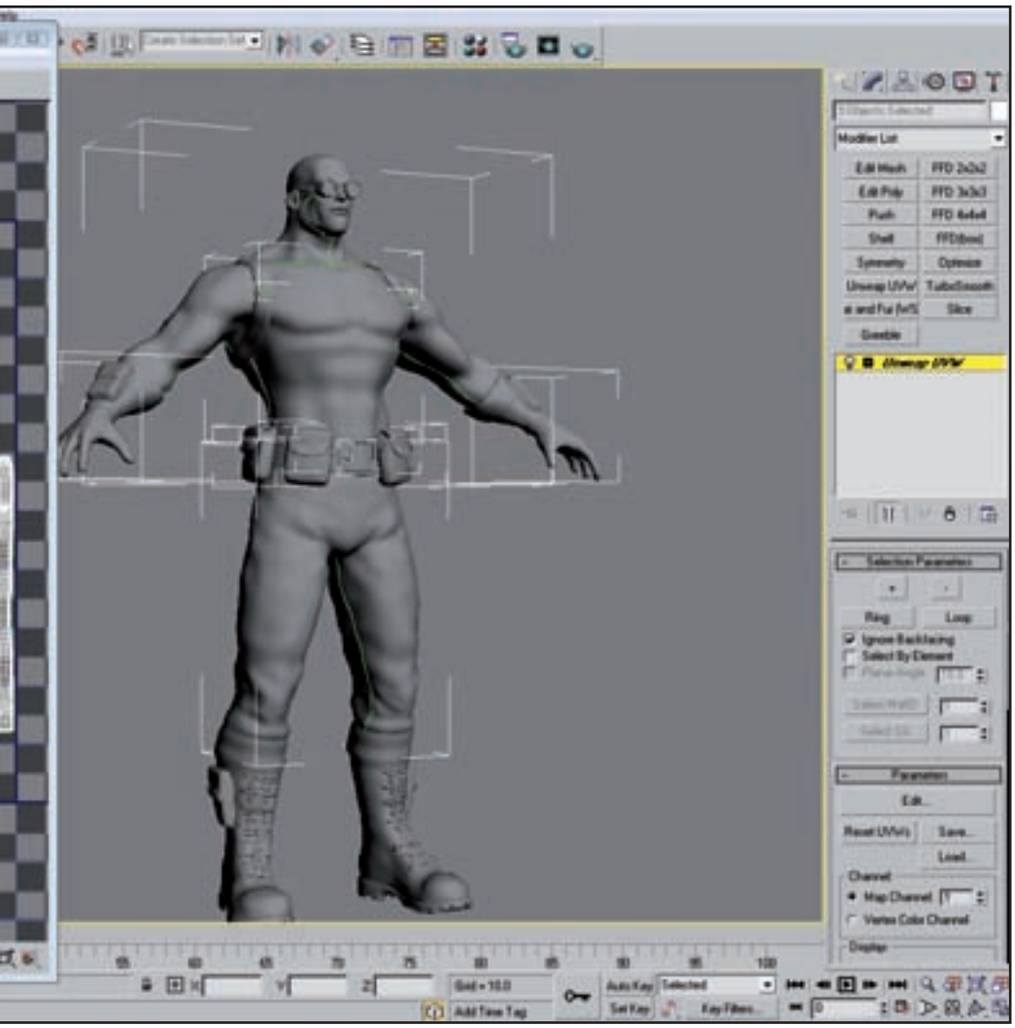

reload the mask whenever I needed to F. I created several more masks for the other parts of the body where I wanted different patterns. This made it easy for doing the texturing as well.

08 Detail with Alphas

I then used custom Alphas to add details on the mesh. In Photoshop, I made a tiling hexagon pattern. One great feature of ZBrush is that it allows you to convert the depth information from a 3D model into an Alpha that you can use with any brush G. I made a quick model of a metal snap and a scale mail swatch. After I had the Alphas, I picked the Standard brush with the dragrect stroke and started applying it to the torso. I continued with the various Alphas and masks until the whole character was detailed.

09 Texturing the model

Next, I loaded the masks back onto the model and filled the various areas with base colours. I started to rough up the texture using the Standard brush with the RGB value set very low and the ZAdd turned off. Under the Brush menu, I turned on Cavity mask in order to get interesting effects in the recesses of the model H. Once I had the Color maps, I exported them to Photoshop, cleaned them up a bit and created Specular maps.

E If you plan on texturing in ZBrush, try unwrapping most of the objects onto the same map

F If your tool has UVs, you can create an Alpha from a mask so you can reload it at any time

G ZBrush can turn models into brush Alphas, so you can add complex detail anywhere on the model

H Painting textures in ZBrush is a great way to quickly try out colour schemes

Lighting and rendering

There are many sites that provide free HDR images online. Image-based lighting is a great way to set the mood for a scene; try using it in conjunction with traditional lighting techniques, like a three-point lighting setup. Sometimes I will use one HDR image to help light the scene, and a different one for reflections if that gives me better results. The fun part about doing a digital illustration is that you can break as many rules as you want as long as the final image looks good. This is harder to pull off when you are rendering an animation, where it is much easier to notice if the reflections don't match the lighting, or any other number of short cuts that you can take for a still image.

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Artist Showcase

Jeff Miller

Jeff graduated from the Savannah College of Art and Design in 2001 with a degree in Illustration. He spent the next few years working at various companies in the game industry, eventually ending up in the position of lead character artist at companies such as Monolith and LucasArts. Jeff now works as a freelance artist, working for clients in the film and game industries.

Sparrow **ZBrush, 3ds Max (2009)**
After creating the Pixologic Superhero, I thought I might enter. I didn't make the deadline, but I did manage to finish it in my free time.

The Boxer **ZBrush, 3ds Max, Photoshop (2009)**
This was a personal piece that started as an anatomy study and evolved into a complete scene. It was a good learning experience

Chimera **ZBrush (2007)**
This quick ZBrush sculpt is part of a series of creatures I have been working on in my free time over the last couple of years. The idea is to improve my speed and modelling skills

Textures

The more I texture with ZBrush, the more I like it. I never used Deep Paint or any other paint-on-the-model program before ZBrush, so I have been missing out until now. Painting textures in ZBrush is a great way to avoid having seams.

10 Posing with Transpose Master

Whenever I can, I avoid building a skeleton and rigging a character. I set up the topology in a way that allows me to pose the character in ZBrush using Transpose Master. The client wanted a few different poses and provided me with comic book references. I also looked at some books of poses that I had in my reference library, and created six or seven basic poses in Transpose Master I. I only spent a few minutes on each one, and then compared them all to see which ones I liked best. I decided on four and continued to refine them. Transpose Master is great for posing all the subtools together, but you have to spend extra time working at different subdivision levels on the joint areas to get a natural look.

I I can do several poses in ZBrush's Transpose Master faster than rigging the character in 3ds Max

11 Get ready for rendering

The last thing I did in ZBrush was prep for rendering. I exported a mid-level subdivision for each subtool in each pose, and created Normal maps for them J. I didn't think I would need Displacement maps for this character, so I skipped that step. In 3ds Max, I started importing the meshes for the first pose.

J Pick a subdivision level from ZBrush that will keep the silhouette and use Normal maps to maintain the detail

12 Making materials

Usually I set up the lighting first, but since I was doing a different lighting setup for each pose, I focused on creating materials that would look good in any lighting condition K. I started with the Arch & Design material for the suit. I tried out a few of the presets but I ended up just tweaking the default settings. I added in my maps, keeping it simple for this character. The skin material was a standard SSS Fast Skin. Since the skin was such a small part of the character, I only used Color, Subdermal and Specular maps, in addition to the Normal maps.

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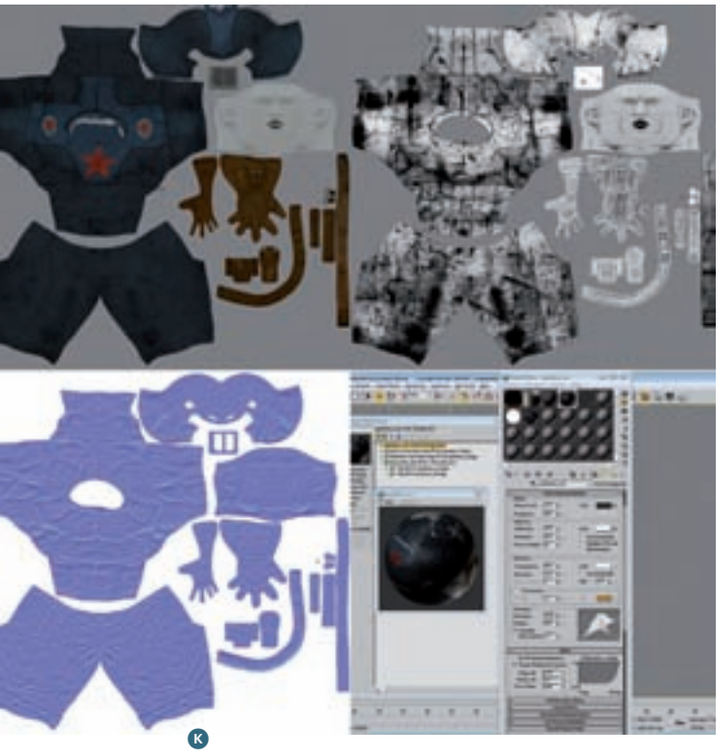


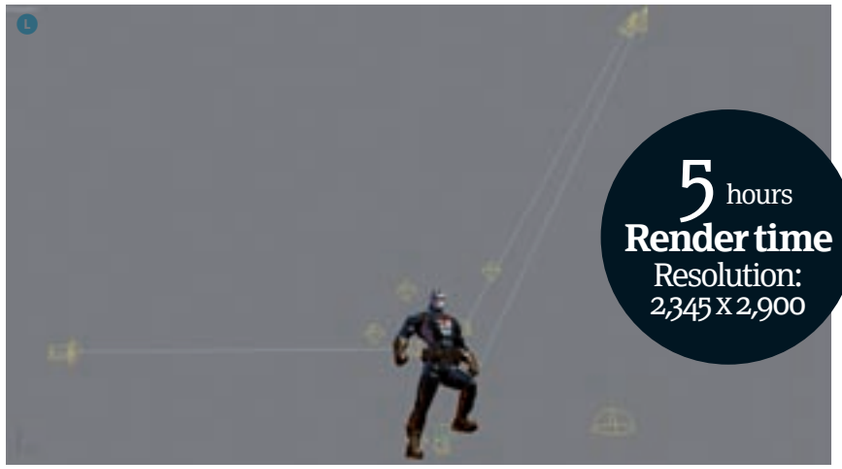
K Play around with the Arch & Design material until you get the look that you want

13 Lighting the old-fashioned way

I decided not to have Photometric lights because they can increase the render time. Instead, I set up a Sky light, Key Spot light and Directional light to serve as a fill light L. I scattered around a few Omni lights to get some nice rim lighting. A few test renders later, I had my light values and colours where I wanted them. At that point, I was ready for the final render.

14 Render Settings

I needed fast renders since I was delivering several different images on a tight deadline, so I streamlined the render settings. I used the lowest Final Gather settings with only one diffuse bounce. I would be rendering an Ambient Occlusion pass to multiply on top of the image, which made up for some of the brightness that you get when you use low FG settings. I set the anti-aliasing high, but I kept the sample quality at Box, where I would normally change it to Mitchell or Lanczos. You can always run a Sharpen filter in Photoshop if the image isn't crisp enough.



L Add one light at a time to the scene to be sure of what each one is doing

15 Compositing and postprocessing

After doing the final render, I did an Ambient Occlusion and Z-Depth pass and then brought everything into Photoshop. I used the Ambient Occlusion as a multiply layer and applied some colour correction where it was clearly needed M. I was able to see more that I would liked to have done to the composition, but the deadline was fast approaching so I went back in order to render the other poses, finished them and it was complete!

Rendering

There are no correct render setting. They will all change based on what you are doing. Sometimes, increasing a setting can add tons of render time without giving much of an increase in quality. I was happy with the results I got, even with the lowest Final Gather settings and without using Displacement maps.

M An Ambient Occlusion map helps pop the detail, while the Z-Depth is useful for adding blur to the background

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Modelling rendering, and lighting

Software used in this piece

modo1 | CINEMA 4D | Poser Pro | Photoshop | Pixelmator | V-Ray

"The intention of this image was for something beautiful and glamorous to have a powerful impact with an Oriental theme"

STEVEY3D 09

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Steve Moore

3DArtistonline
Username: stevey3d

Personal portfolio site http://web.me.com/stevey3d/

Country UK

Software used modo, CINEMA 4D, Poser Pro, Photoshop, Pixelmator, V-Ray

Expertise Graphic design, 3D modelling and 3D content design and production

Customise stock models and photos

Katana 2009

Steve Moore has been working with 3D since the later Eighties

This tutorial walks through the creation of *Katana*. This image required multiple 3D skills, including modelling, sculpting, composition, lighting and texturing. The process uses an approach involving multiple applications.

The female character in the image uses the DAZ Victoria 4 model, but was modified within modo using its specialist sculpting tools.

The skin textures were created in Photoshop and modo using high-resolution photographs sourced from www.3d.sk. The outfit she wears is an off-the-shelf model, which was retextured and modified in CINEMA 4D to accurately fit the character.

This particular car model was chosen because of the unique design of the front end, which perfectly complemented the overall theme of *Katana*. The car was completely retextured and the special logos were then applied to it.

Finally, the rest of the set design was modelled in CINEMA 4D.

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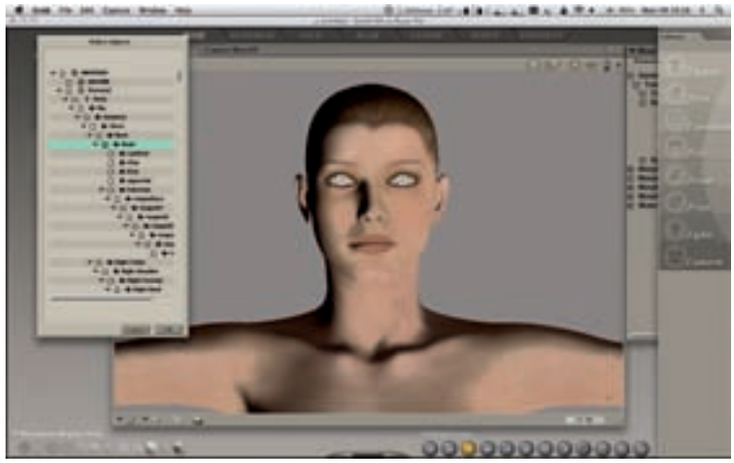
Character

Morphing an existing model



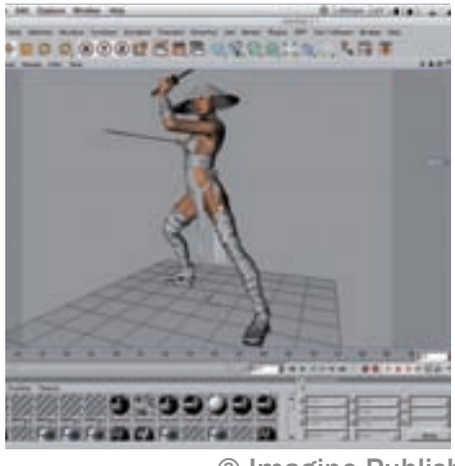
01 The first step was to create the Oriental morph for the DAZ V4 model. This was created in modo using the Sculpt tools. The Victoria model was loaded into Poser Pro and the parts to be sculpted were exported as OBJ files. The parts must be exported as individual items or Poser will not allow the loading of the morphs later.

02 The OBJ export from Poser Pro was then loaded into modo and the mesh-based sculpting tools were used to create the Oriental morph. The main tools used were the Move, Inflate and Flatten tools. It is important to activate the Symmetry: X before any sculpting is performed, as is that the number of vertices remains the same or Poser will not recognise the OBJ file as a morph for the original model.

03 Finally, the morph was loaded into Poser Pro and applied to the character model. The textures were also applied. These were created in modo via projection painting and Photoshop using high-resolution photographs from **www.3d.sk**. The character was clothed, posed and saved ready for import into CINEMA 4D.

Initial modelling

How the elements were put together



04 The character was then imported into CINEMA 4D using the interPoser Pro plug-in. The textures were imported at the same time and any duplicates were deleted. The model was then checked for any problem areas. The character was placed on the floor and editing of the figure then began.

05 Certain parts of the character model were modified to fit the character pose more accurately using CINEMA 4D's polygon-modelling tools. The Magnet tool was also used. The process followed the selection of the appropriate model part, then the polygons to be modified were moved, scaled or deleted.

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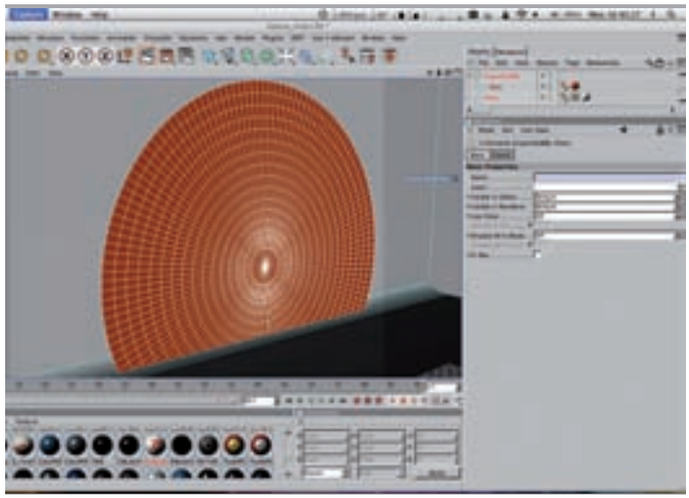
Final modelling

Complete the scene in preparation for texturing

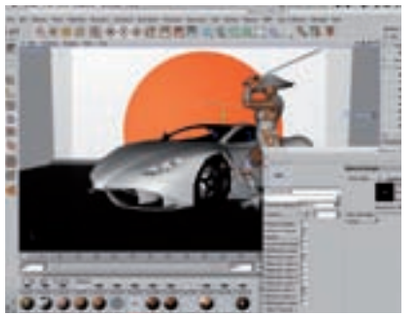
06 When the character was complete, the car model was imported. This is in 3ds Max format. The model required all new textures, but initially I created the Katana logos in Photoshop and applied those. The Katana logo is actually the Japanese character for Katana. The new logo was applied to the bonnet badge and wheel centres. The rest of the textures were converted and modified later in the process.

Getting help

Just as a Photoshop artist might make use of stock photos in their work, a 3D artist should never dismiss using stock models or other off-the-peg files. As we see here, even if you start with a stock model you can then customise it to suit your image. It's a great time-saver, too. Use models for the extra content in your scene and concentrate on modelling one thing. If you're just starting out and you do this, it means you can put your efforts into practising a skill and still end up with a finished image. Check out our feature on page 34 for some stock websites.



07 The final stage consisted of creating a backdrop and floor with a large orange disc, fitting in with the Oriental theme The floor and wall were created from a cylinder, three quarters of it deleted and the remaining long edges extruded. This created a soft curve where the wall meets the floor. The disc was a cylinder placed in a HyperNURBS object so that it rendered with a round edge.



08 All textures were modified for use with V-Ray. The alpha channels were inverted, the Bump and Specular attributes modified and some bitmap interactions changed. V-Ray's Material Converter plug-in was run, but the alphas required inverting and textures needed Luminous, Reflection or Specular modification.

Artist showcase

Steve Moore (aka stevey3d)

I have been involved with 3D since the Eighties. The first application I used was Bryce 1 and then a little later trueSpace for modelling. As time passed, I added Vue d'Esprit version 1 and Poser 2 to my 3D arsenal. I now use modo 302, CINEMA 4D 10.5, Vue 7 xStream, LightWave 9.6, ZBrush 3 and Poser Pro to create my images and models. I have always enjoyed sci-fi and creating 3D model content for the 3D model market. I specialise in character creation, interior architecture and content design.

***Sci-Pad* modo (2008)**
This model was designed to give maximum flexibility and interest as a science fiction 3D content model. The spiral staircase and glass wall provide focal points, while the colour scheme could be varied depending upon the look required. The furniture, room and textures were all created in modo. Modelling was performed using polygon tools

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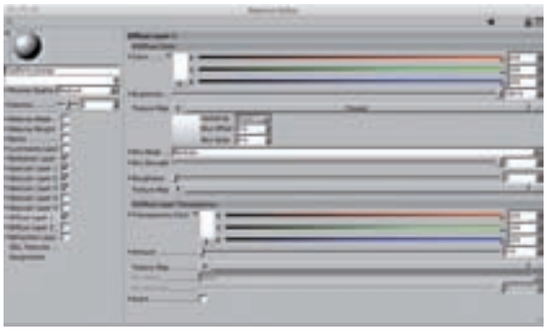
Textures and lighting

Putting the final touches in place



09 **With all the** textures converted and low-resolution test renders run to confirm they looked correct, certain textures, such as the glass, car paint, chrome and the set textures, are created from scratch to replace the imported ones, using the Create V-Ray Material option in CINEMA 4D. The car paint used a Diffuse Gradient to produce depth, reflection and three Specular settings to give the texture a high-gloss finish.

10 **The lighting for** this image used V-Ray's GI only. The GI parameters for the lighting used an Irradiance map for the Primary bounces and Brute Force for the Secondary bounce. The Irradiance map used four passes and Detail enhancement (an approximate form of Ambient Occlusion shadowing) is enabled with a Subdivs multiplier of 0.3. The Environment Background and Global Illumination colours are set to white.

11 **The final steps** were to set the Antialiasing options and Output size and format for the render. The render antialiasing used Adaptive subdivision with a Min rate of -1 and Max of 2. The Output options for the render were selected, here a resolution of 3,840 x 3,072 and a PSD format.

12 **Once the render** was complete, the final stage was the postproduction work. The two applications used were Photoshop CS4 and Pixelmator. Each image is different concerning the postproduction work required. In this case, Color Balance, brightness and a signature were required. The Color Balance was modified using the Pixelmator application. Both mid and high tones were modified adding seven per cent red and two per cent orange.

The Poser morph

modo was used to create the Oriental morph. A Poser morph is simply a modified OBJ file loaded into Poser and applied to the relevant body part, in this case, the head (to change its appearance).

Stage 1: Export the figure part (must be just one part, for instance the head only) from Poser as a Wavefront OBJ file.

Stage 2: Import the OBJ file into modo. Activate the symmetry on the X axis and select the Sculpt tool palette. No geometry must be added or removed. The brush size must be kept as large as possible for each area. View the mesh in wireframe and smooth any stray points.

Stage 3: In Poser, load the morph (OBJ file) for the head part and then use the dial in order to apply the morph.

15 hours render time
Resolution: 3,840 x 3,072

Waiting **Poser, CINEMA 4D, V-Ray (2008)**
This image was one of the first I created using the V-Ray render engine plug-in with CINEMA 4D. The greatest amount of time was spent perfecting the textures after conversion to the V-Ray-compatible format. The render time took ten hours. The image was a test to learn the intricacies of the V-Ray render engine and its GI lighting

Kiki - Leisure Cruise **modo, Poser, CINEMA 4D and V-Ray (2009)**
Kiki is a recent character I created. The modelling for the character was performed in modo using the sculpting tools. The character skin textures were created using a combination of modo projection painting and Photoshop. The furniture and room were modelled in CINEMA 4D and modo. This was a promotional image for the new character

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

James Knowles

Personal portfolio site
www.grungetv.deviantart.com and www.grungetv.artworkfolio.com

Country UK

Software used CINEMA 4D and Photoshop

The final details were created using the Pen tool and applying a small tapering brush to the paths with Simulate Pressure checked to create the wispy hair-like elements coming from the main object. A few circles were added and then some tiny lights with soft brushes added the final effect

> “I made several objects in CINEMA 4D, with the main element being the large, twisty object that makes up the main focal point of the image. This was made using several splines placed into a Loft NURB, then altered using Bend and Twist Deformers”

I used Photoshop to compile the elements. The first stage was making an Angle Gradient to create the background onto which I placed all the separate elements. I also used various sections from photographs of textures and added them using Screen or Overlay modes to break up the background and add more interest. All the layers were adjusted using the Match Color option to keep the colour scheme the same as the background

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“I made a final shape to be used as a repeat shape when I compiled the elements together. This took on the loose form of a claw, and again was rendered several times using the same light setup for consistency”

The smaller elements were created in a similar way, but each of these were placed into an Atom Array to give the effect of wireframe structures, then all rendered separately using the same lighting setup, in this case a basic light for main illumination then a softer light to enhance the forms

Ovolobe
2008

Typically, as with most of my abstract images, the title tends to suggest itself as I'm nearing completion or have finished the image. In this case, I perceived the whole object as a kind of artificial birthing device, spewing out its eggs in the form of small glowing orbs from its mouth-like structure. 'Ovolobe' is made from ovum (eggs) and lobe (soft fleshy part).

Software used in this piece

CINEMA 4D Photoshop

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Part one

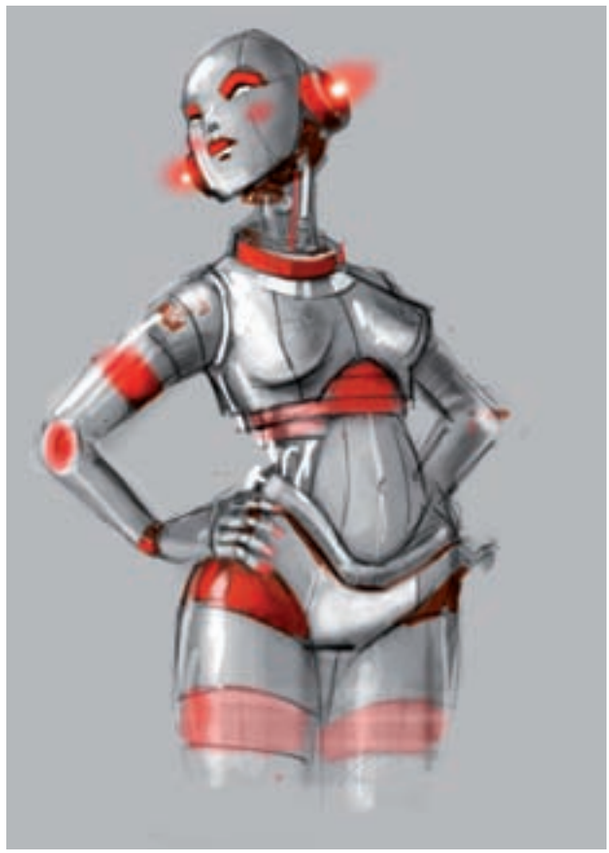
Part two next issue

Step by step: Create an elegant robot

Joybot 2009

"A shiny futuristic robot pin-up girl, created as a portfolio piece for modelling and material practice"

Lee Davies is a graphics artist and an expert on 3D Artist's Q&A pages



This image came about from a 3D Artist brief to create a glossy, futuristic robot girl featuring realistic proportions set in a simple but suitably futuristic environment.

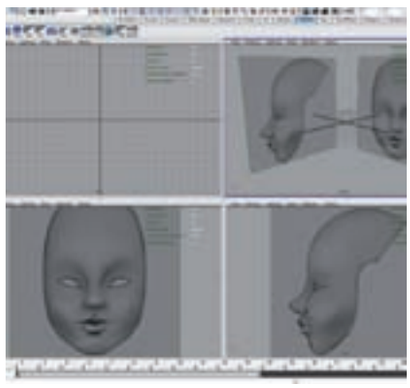
This is an overview of the key steps used throughout the project, from initial concept to completion. It will cover topics including modelling (blocking out and refining poly geometry), posing, adding detail and texture, creating a background, selecting materials, rendering and finally compositing. The 3D work was created using a combination of Maya and ZBrush, rendered using mental ray and finally composited and tweaked in Photoshop.

While there are many images of a similar subject matter, I didn't reference them too closely; instead, I drew influences from alternate sources to make my own design original. I also wanted to build an elegant robot by creating components consisting of simple geometry that suggested detail, but were quick and easy to produce.

Initial scene setup

Sketching ideas

01 **I started by** collecting resource material, including classic pin-ups from the Fifties and Sixties. My goal was to create an image that would capture a sense of the elegance and allure typical of this imagery. Suitably inspired, I then began to sketch some rough thumbnail ideas, which were gradually refined until I had something resembling a rough concept and composition to aim towards. I generally like to keep my designs fairly loose at this early stage, so that ideas can evolve as the project progresses.



02 **In order to** establish proportions and for use as image planes during the modelling process, orthographic front and profile views of the head were created (with much care taken to ensure that features lined up accurately in each view).

03 **To import image** planes into a Maya scene, open the Hypershade/Cameras window, click Create>Image Plane and connect to the camera by dragging the Image Plane tab onto the Camera tab in the work area, selecting the default connection. In the Attribute Editor for the plane, click the folder beside Image Name and locate the file. Ensure the planes do not obscure the work area by moving the front plane centre z attribute -20 and the side centre x -20.

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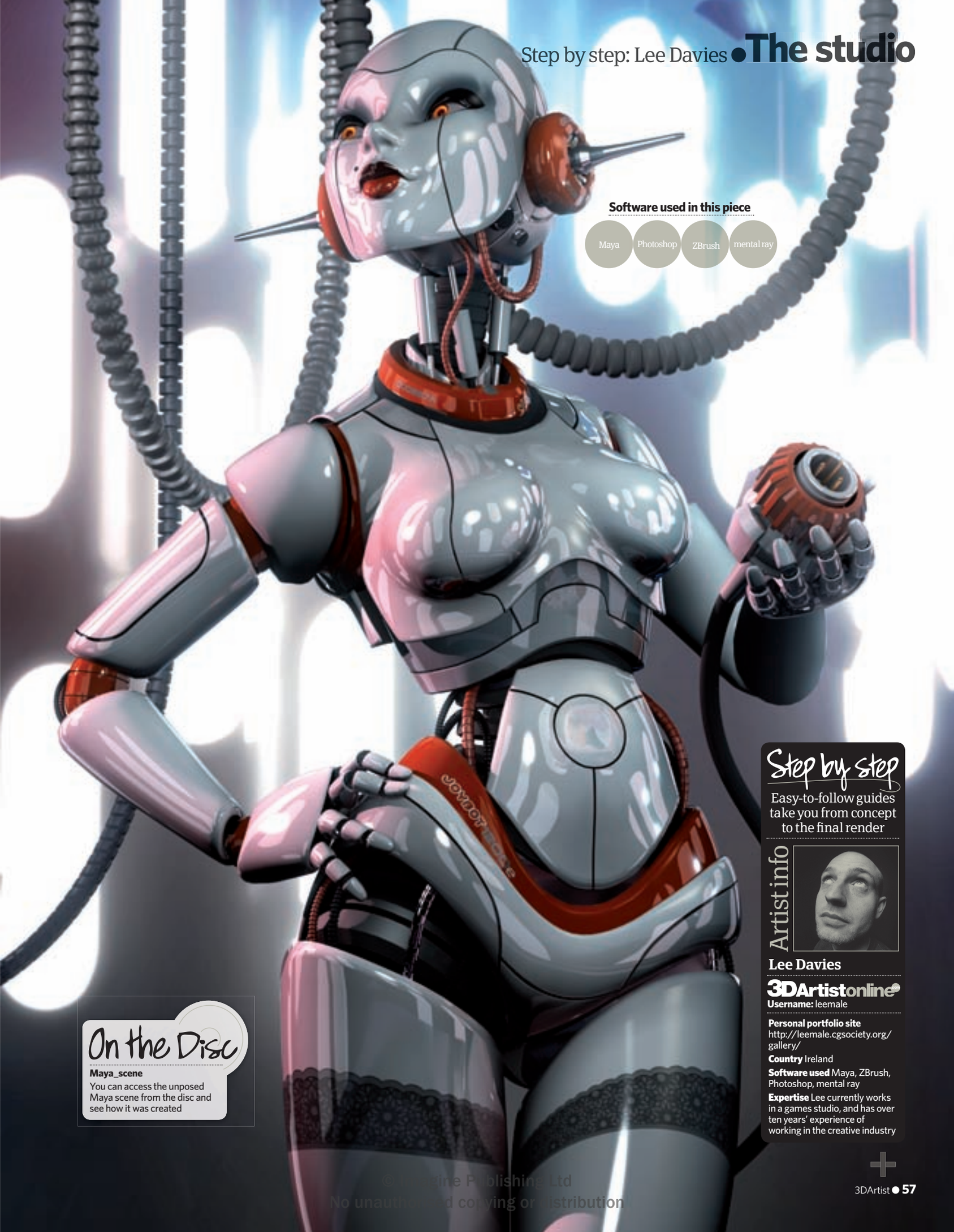

Software used in this piece

Maya · Photoshop · ZBrush · mental ray

On the Disc

Maya_scene
You can access the unposed Maya scene from the disc and see how it was created

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Lee Davies

3DArtistonline
Username: leemale

Personal portfolio site http://leemale.cgsociety.org/gallery/

Country Ireland

Software used Maya, ZBrush, Photoshop, mental ray

Expertise Lee currently works in a games studio, and has over ten years' experience of working in the creative industry

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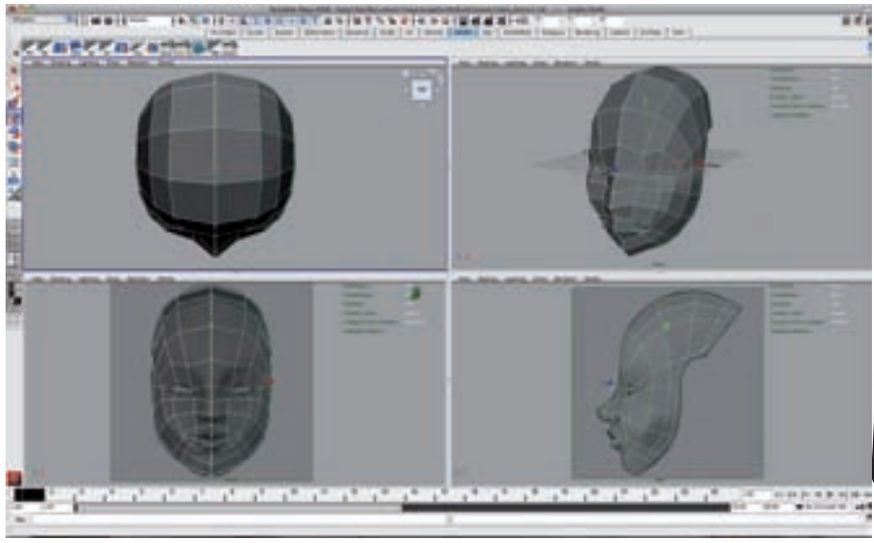
Sculpting the head

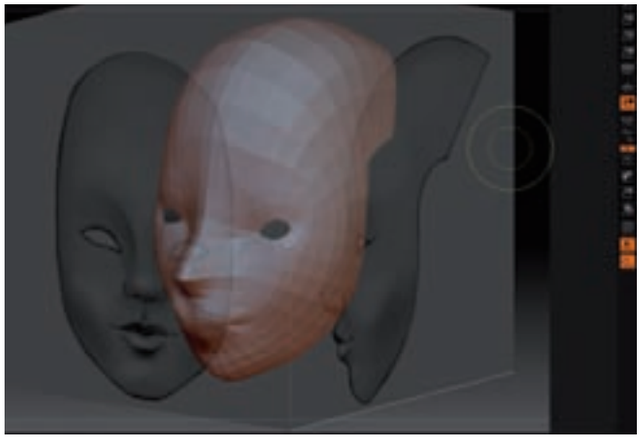
Start with a low-res base mesh



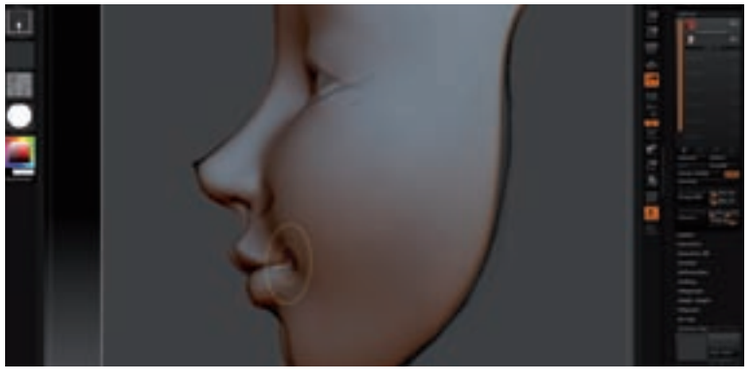
04 **To create an** overall shape for the head, I began by creating a primitive cube and pulling the corner vertices to roughly match the image planes in the corresponding views. Because the front is symmetrical, it was only necessary to concentrate on one side – the other half of the cube was deleted temporarily. Using the Split Polygon tool and adding edge loops, the topology was adjusted to define the contours around the jaw line, mouth and eye regions.

Modelling

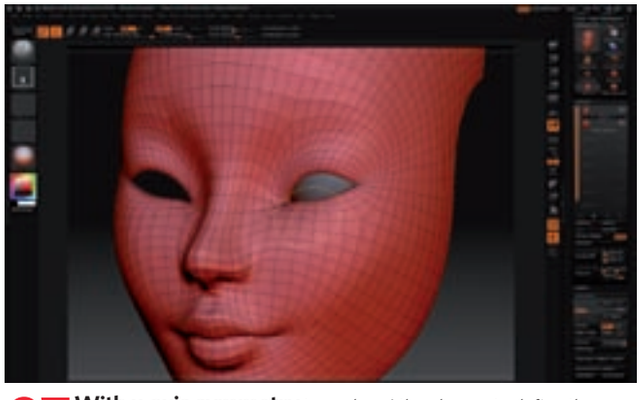
While I have simplified most of the steps here, I tend to find myself jumping between Maya and ZBrush continually. Maya features some basic mesh-sculpting tools, but these aren't nearly as responsive or versatile as those in ZBrush. I usually export my base mesh to ZBrush for quick sculpting and subdividing, before reimporting to Maya for editing extraneous edge loops, etc.



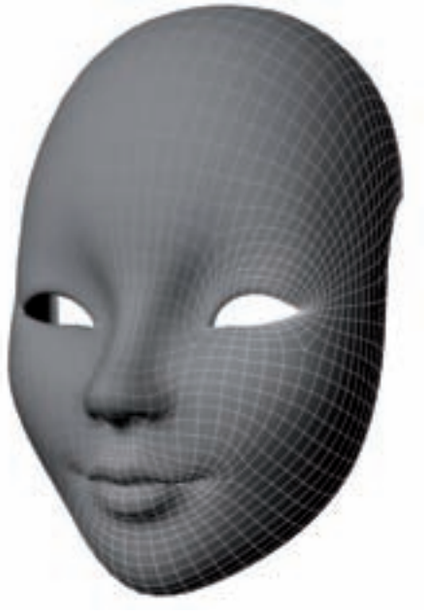
05 **I continued this** process to start defining a rough nose. Edges were split to create edge loops around the eyes, and the centre faces were deleted to create an eye socket (maintaining four-sided poly geometry).



06 **Once a base** mesh with reasonable topology had been established (and the missing half had been duplicated and restitched together), it was exported as an OBJ file to ZBrush. The same front and profile image plane sketches were assigned as a texture to an image plane cube ZTL file and the base mesh appended as a subtool. With Edit Activate Opacity selected and snapping to orthographic views (by holding Shift), it was easy to evaluate the model against the references and shape the mesh accordingly.



07 **With x-axis symmetry** turned on, I then began to define the features. Using a large standard brush, mass was added where appropriate and the Move brush was used to pull the model into shape. As much definition as the lowest subdivision level allowed was established before subdividing to provide more resolution for sculpting. Then, with a smaller brush and selective masking, finer detail was created around the nose and mouth.



08 **Next, a primitive** sphere was appended as a subtool, then scaled and moved into position as a placeholder eyeball to enable the eyelid area to be properly shaped around it. Once the sculpting of the head in ZBrush was finished, it was then reimported to Maya and thickness was created around the edge of the face mask by extruding the border edges and scaling inwards.

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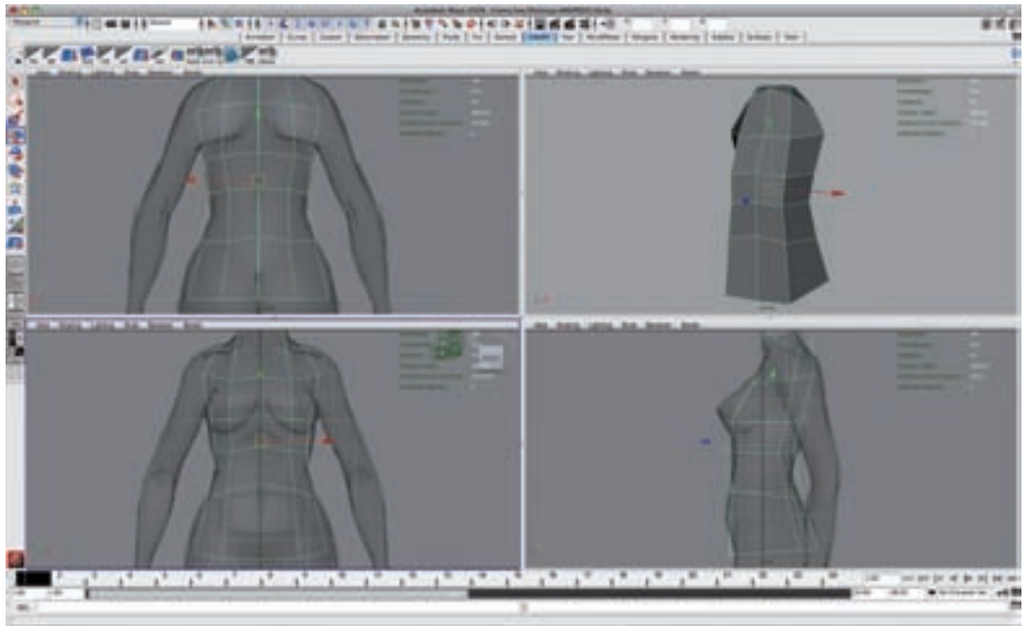
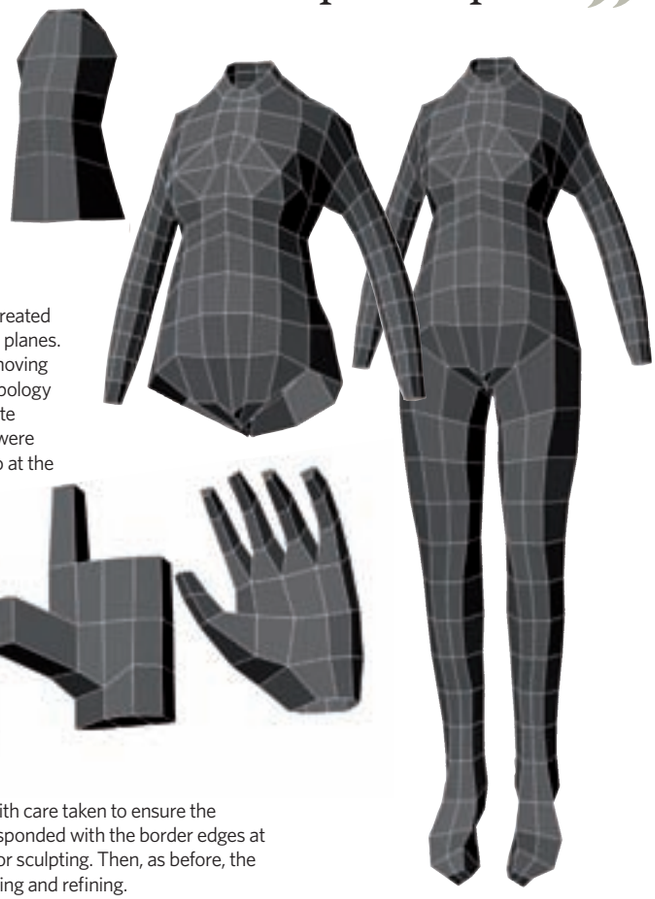
Building body parts

Boxing out proportions in Maya and refining in ZBrush

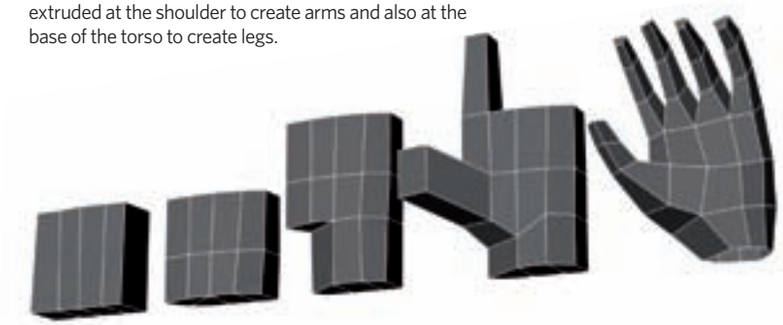


09 **Rather than creating** the robot's body panels from scratch, I decided to create a realistically proportioned female body and then split the mesh into component parts. A copy of the resulting model could then be stored for use as a template for posing later on in order to help maintain the relative anatomical proportions. As before, image planes were used as references, this time with an additional rear view, which was assigned to a new camera view (for this, select Panels> Orthographic>New>Front, while in front view. Rotate 180 degrees in y and centre it -100 in z).

> "I created a realistically proportioned body and split the mesh into component parts"



10 **An overall shape** for the torso was created by scaling a cube to match the reference planes. I then began adding horizontal edge loops and moving vertices. With a rough shape established, the topology was then adjusted around the chest area to create breasts, using the Split Polygon tool, then faces were extruded at the shoulder to create arms and also at the base of the torso to create legs.



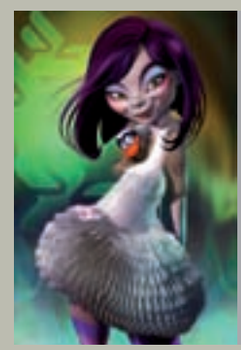
11 **The hands were** created separately, with care taken to ensure the number of border edges at the wrist corresponded with the border edges at the end of the arms, so they could be attached for sculpting. Then, as before, the body mesh was exported to ZBrush for subdividing and refining.

Artist Showcase

Lee Davis

I am currently working as an artist for a game studio based in Dublin, Ireland. I have a BA (Hons) degree in Illustration (first-class honours) and over ten years' experience working in a variety of creative roles.

***Judge Dredd* ZBrush 2007**
Judge Dredd was created using ZBrush, while learning to use Alpha brushes for surface texturing. I intend to return to it and finish it off at some point in the future



***Björk* ZBrush 2008** *Björk* was created as a portfolio piece for practice. It was one of my first forays into ZBrush. I wanted to create a cute, fun image that had a sense of her quirky persona

***Mr T* Maya, mental ray, ZBrush, Photoshop 2008**
Everyone's favourite gold chain-wearing, ain't-getting-on-no-plane kind of guy, *Mr T* was yet another folio image created for a bit of fun

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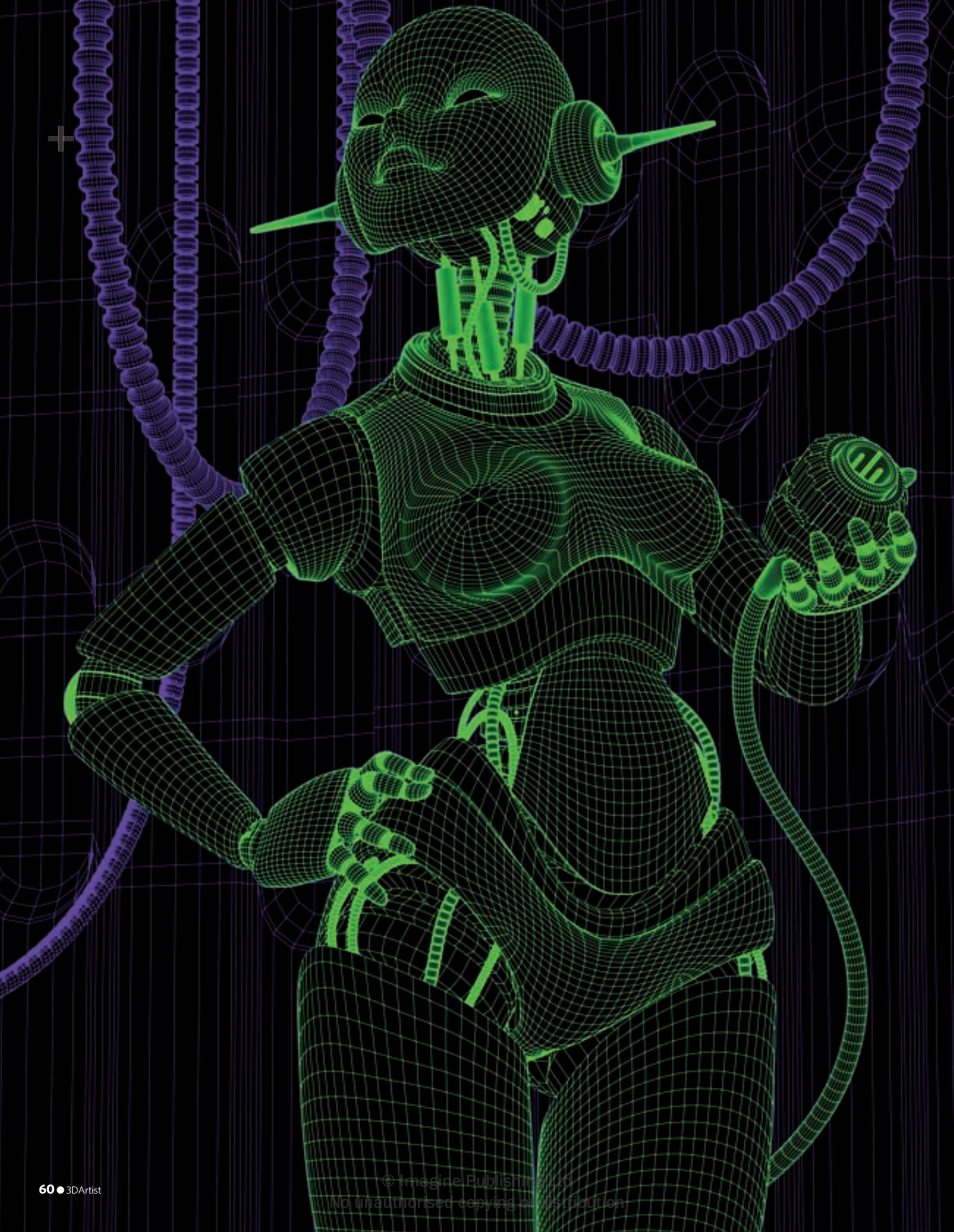

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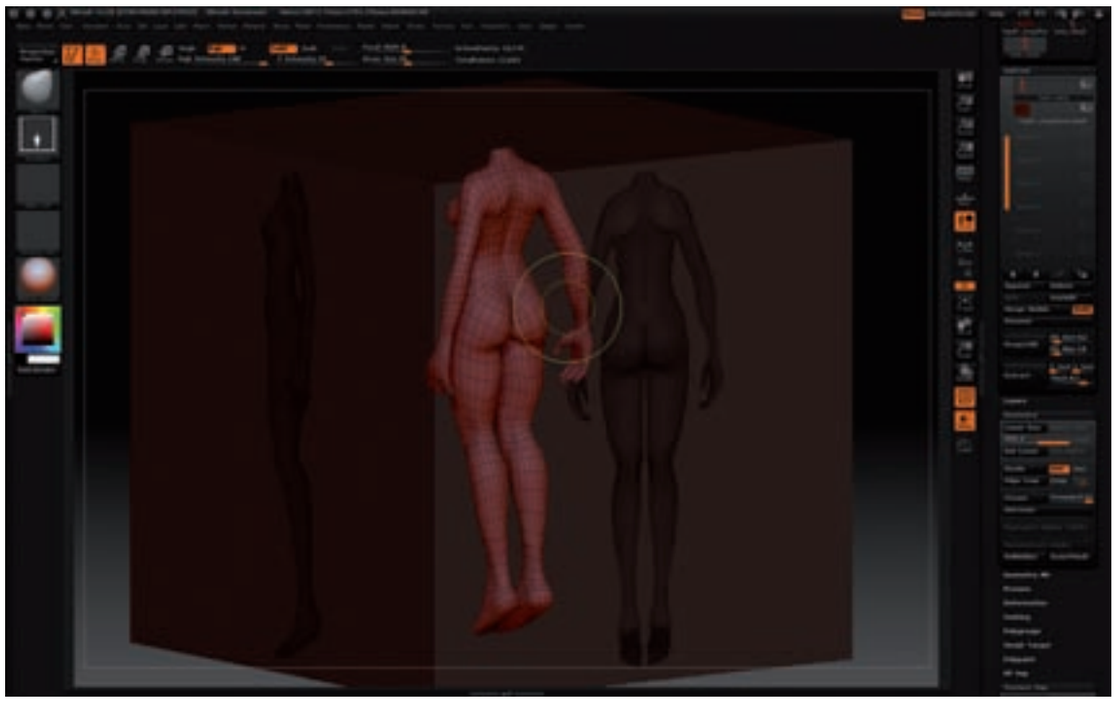
ZBrush poly painting

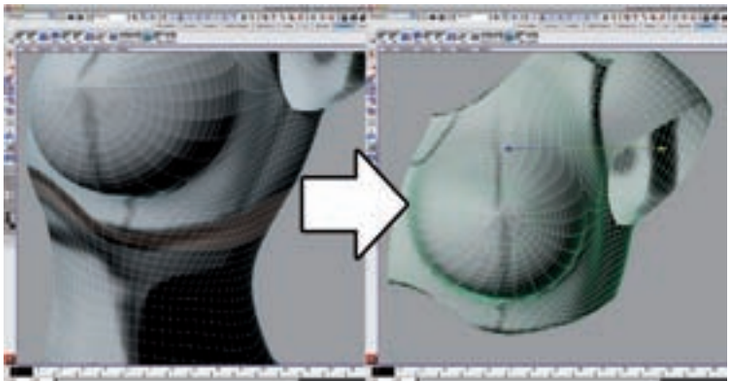
Create a reference texture for splitting up panels

12 **It wasn't necessary** to sculpt too much detail, as the finished robot would not feature any fine muscle definition. What was important at this stage was to establish the general forms, concentrating on the areas that would be split into component panels later on: the chest, hands and groin regions.



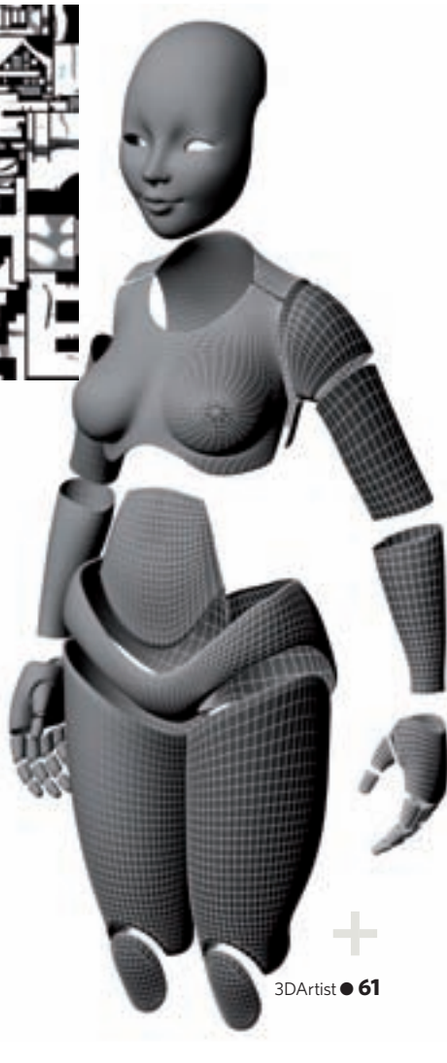
13 **The panels were** initially painted directly onto the model using ZBrush poly painting. The idea was to convert this to a texture that could be used in Maya for reference when splitting the mesh into pieces. In Edit mode, turn off Zadd/Zsub, select RGB and use the standard brush with Freehand stroke to paint (with x-symmetry turned on). To achieve fine lines for this purpose, subdivide the mesh a few times.

14 **To convert the** poly paint to a texture, assign UVs to the model using a suitable mapping option under the Tool>Texture submenu with the lowest subdivision active. Under the main Texture menu, set the width and height (2,048 x 2,048). Flip V to make UVs compatible in Maya. Select Col>Txr from Tool>Texture for a new texture.



15 **Back in Maya,** the ZBrush texture was assigned as a Color map and duplicate copies of the body (exported from ZBrush at subdivision level 2) were saved for each panel to be split from. I then split the body mesh into the robot's component panels, using the Split Polygon tool and selectively deleting faces with the poly paint texture as a guide to cut along (half the geometry was deleted to save time). The breast, shoulder, back, stomach, abdomen, thigh, arm and hands were all split into components in this way.

16 **Once each panel** had been separated, some retopologising was required to improve the flow of polys along certain edges. This was mainly to avoid any triangles, which can produce unsightly results at render time, as they're difficult to smooth. As with the face mask, thickness was added to each individual panel by extruding border edges.



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Intricate details

Don't get too bogged down

Details

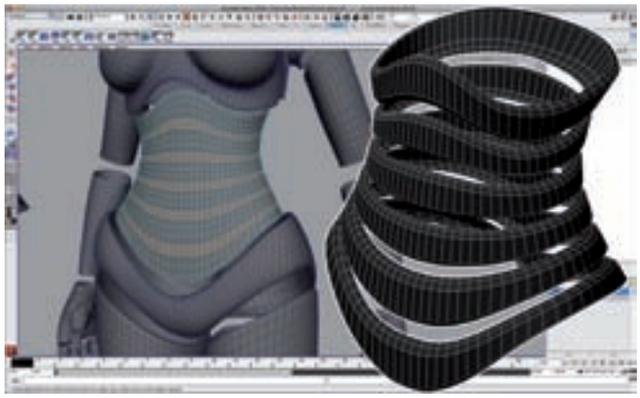
When suggesting details, it's important not to get too bogged down creating every individual nut, bolt and screw initially, as this can become frustrating and time-consuming. Modifying simple primitive shapes and placing them in strategic positions is often enough to suggest there is a lot more going on than there actually is. Hold off the tiniest details until the final composition is locked down. Then, all that may be required are a few small additions to accentuate only areas that will be visible in the final render. Keeping a library of generic parts that can be reused for this purpose (screw heads, gears, pipes, etc) will make this process even faster.

17 **With the robot** taking shape, the next step was to create accessories that would bulk out the internal structure visible between the main panels and also make her look more robotic. On the whole, these could be kept fairly simple (or duplicated and reused several times to suggest more complicated internal mechanics). Before this, I generated a quick render and sketched a few ideas over the image in Photoshop to see what might work.

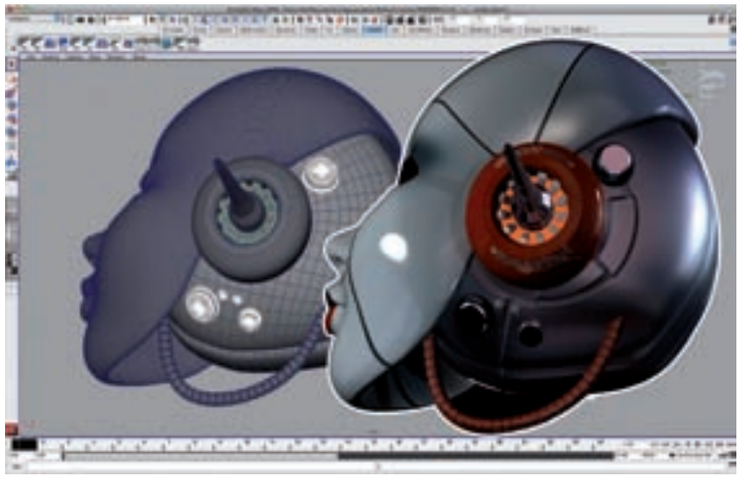
18 **Initially, I thought** about creating some sort of ear pods that might resemble hair (something like Princess Leia's buns from *Star Wars*). These quickly became sort of a funky headphones device, complete with antennae (which I thought might help to emphasise the position of her head when posed). They were created by modifying a torus primitive and basically playing around extruding faces and edges until they looked right.

Switching packages

Working between Maya and ZBrush is always an iterative process, as each package has its own strengths and weaknesses. ZBrush's new GoZ function lets users send models back and forth between programs, allowing the ability to edit in either package without laboriously importing and exporting meshes each and every time.



19 **An internal rib-like** structure was created by duplicating several NURBS curves, the CVs of which were then shaped to follow the contours of the chest and groin panels and then lofted. Rows of faces were then selectively deleted and the border edges of the remaining geometry were then extruded inwards to create thickness.



20 **A neck collar** was then made from a pipe primitive by modifying a few edge loops and extruding faces to make it look slightly more interesting.

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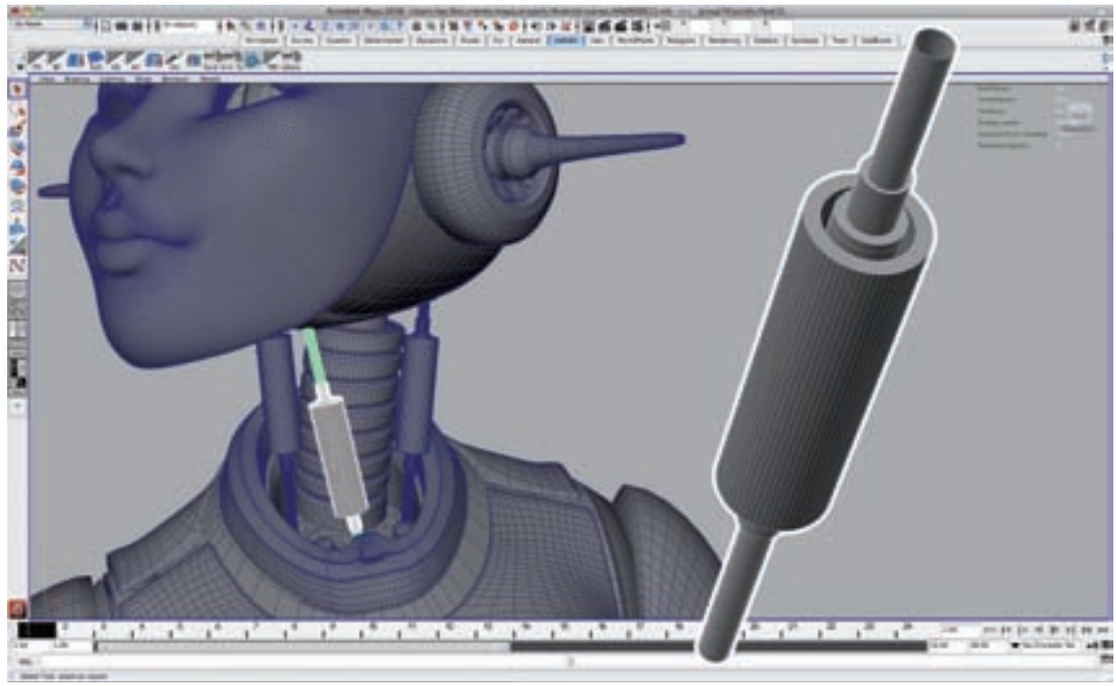
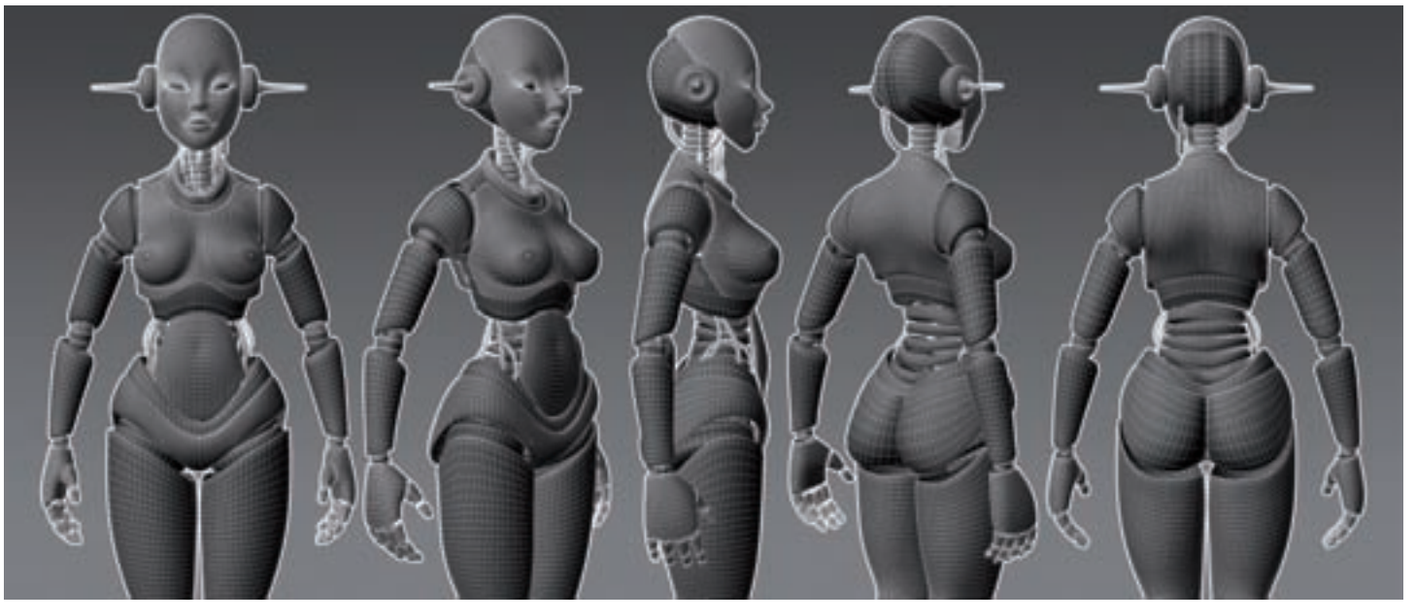
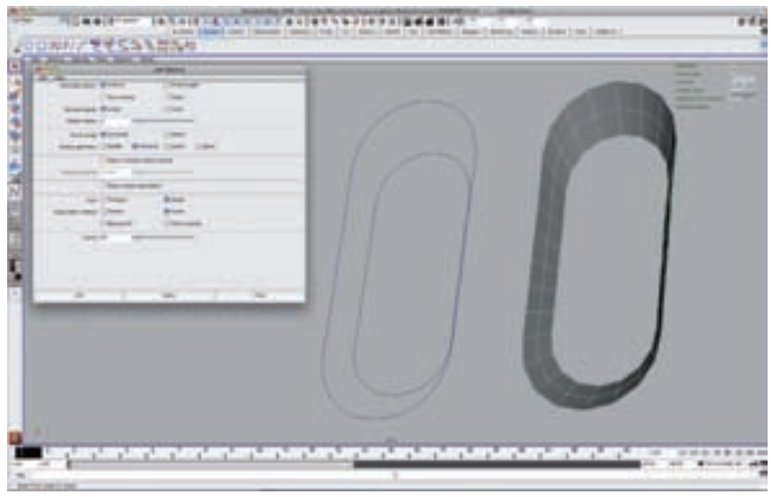
21 **Because the head** of any character will always be a focal point, it was important to ensure that detailing in this region looked credible in terms of robot mechanics , ideally something that echoes contemporary real-world robotics to look as if it might articulate in a believable way. For this I constructed a simple hydraulic piston from pipe primitives, which was then duplicated a few times and positioned together with a skull made from a modified sphere to bulk out the form of the head. For the neck itself (as well as the pipework), geometry was lofted along a NURBS curve, and alternate rows of faces were then selected, extruded and flooded using the Sculpt Geometry tool (set to Push).





22 **Next I added** a couple more panels, one just beneath the chest and another around the hips, both of which served to block in some of the remaining space as well as to emphasise the robot's existing curves to give her a slightly more pronounced feminine shape.



23 **Since the focus** of the final image was always going to be the foreground character, the background shouldn't be overly complicated or compete with the robot in terms of detail; something simple that felt as if it belonged to the same universe and would complement the overall image. I created a simple curved wall consisting of panels with concaved windows to imply a futuristic interior by lofting geometry between two lozenge-shaped profile curves, then extruding the border edges to create a single panel that could then be easily varied, repeated and stitched together as required.

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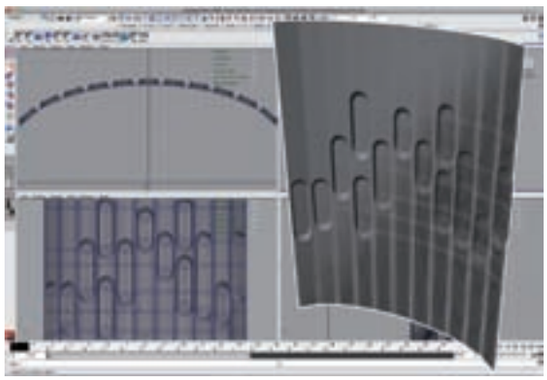
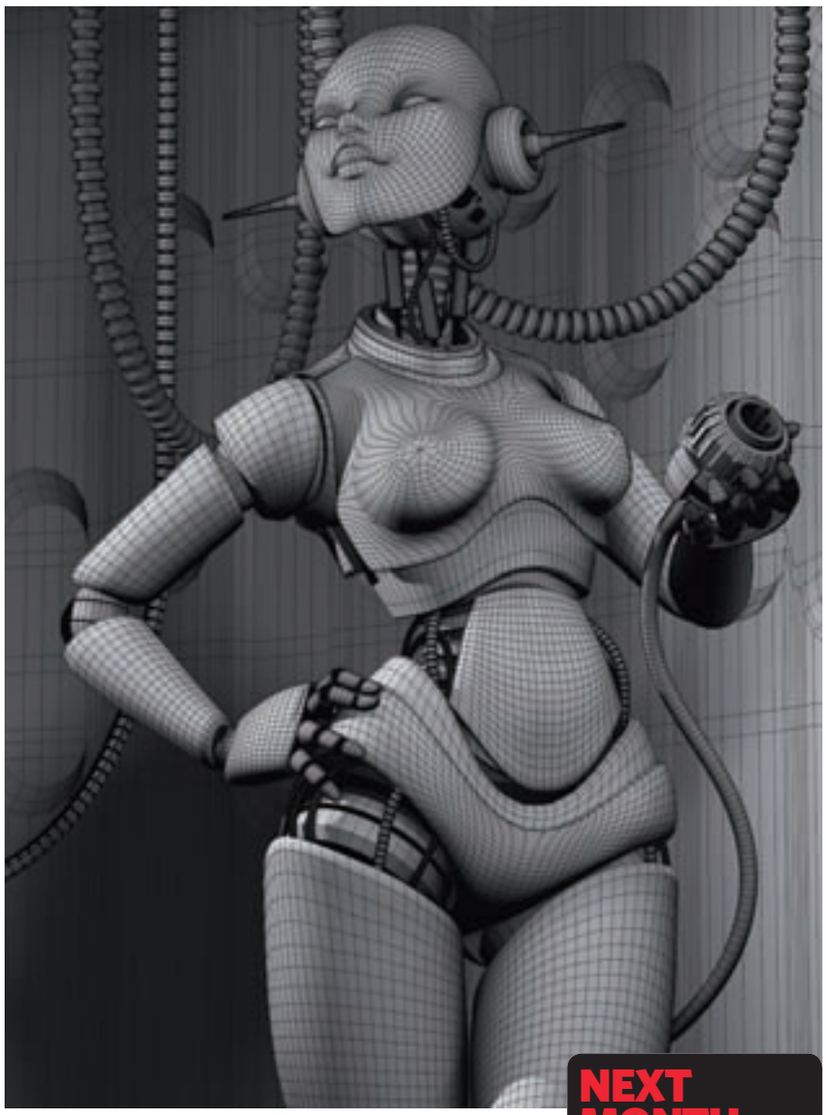
Background

Creating a simple but effective environment



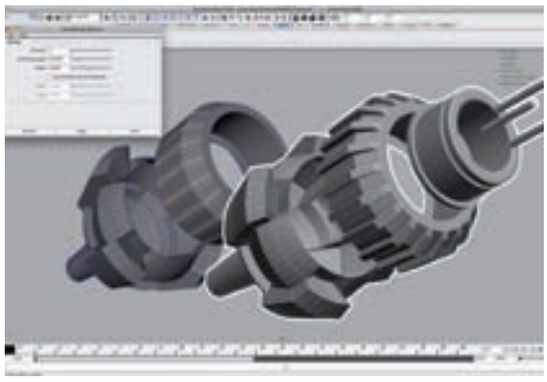
24 **A few hanging** cables were also added to help tie the foreground and background elements together.



Take a step back

It's important to regularly re-evaluate any piece of work, especially during the early modelling stage. Getting feedback from friends and colleagues is invaluable. Never get too precious or protective about a piece of work to take good advice on board. Fresh eyes will often spot things that you may not have noticed yourself. Making small tweaks early on will almost always save time reworking things once they've become too established.

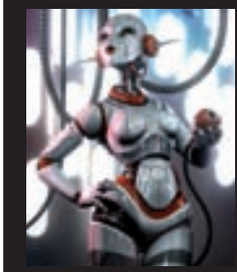
25 **Once all the** main elements were in place, it was time to appraise everything and think about a final composition. I had wanted to keep the pose simple and elegant from the start, but began to wonder whether a small prop might serve as a useful narrative device to make things a bit more interesting. I came up with the idea of having her holding an electrical cable to suggest she might have unplugged herself, but the good thing about art is that the viewer can make up their own story.



26 **A simple domestic** plug just didn't seem appropriate, so after some Googling I settled for something a little more heavy-duty and industrial. As with many of the rest of the accessories, it was created by modifying simple primitives, by pulling edge loops around and selectively extruding faces.

NEXT MONTH

Next month (issue 7), I will cover eyes, posing the character and locking down a final composition, moving on to UV mapping, materials, textures and lighting, finally looking at rendering and compositing in Photoshop.



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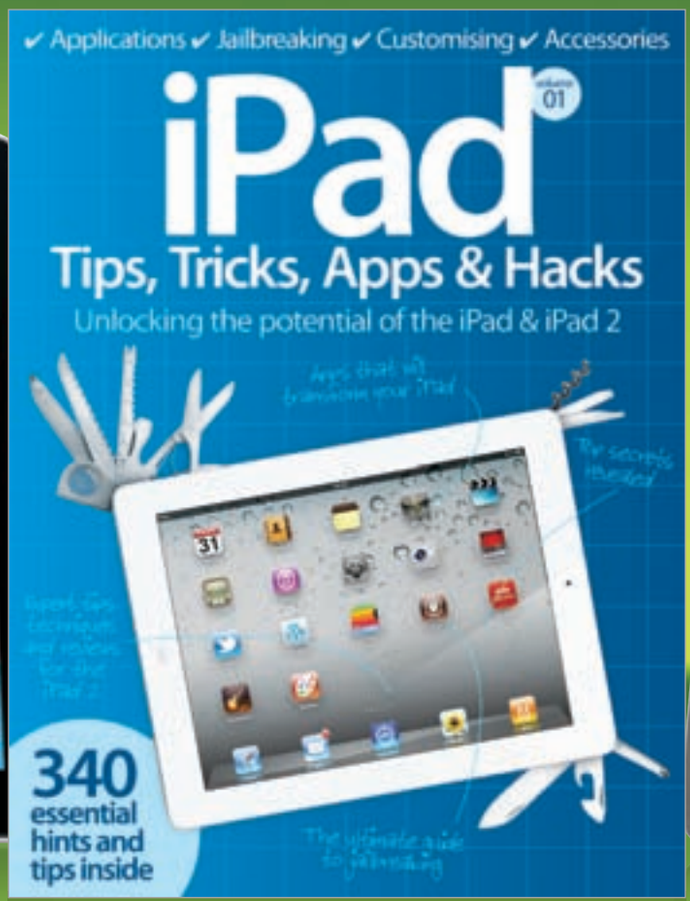

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Dominic Davison

Personal portfolio site http://digital-dom.deviantart.com
Country UK
Software used Vue and Photoshop

There was very little postwork involved in this scene. The only thing I did was clone some of the ivy on the house and spread it further around the walls. Also made some changes to the overall hue of the render.

> The scene was initially composed within Vue. This included placing objects such as the house and trees into the required areas, and getting their size and perspective correct in relation to other objects

Victorian Garden 2009

I love creating landscapes and natural environments, so in this render I wanted to cram in as much detail as possible. The hardest part was painting the 3D ivy onto the house. The scene itself is inspired by artists such as Daniel Ridgway Knight and Thomas Kinkade.

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to view the art and chat to the artist

Most of the objects are from cornucopia3d.com and daz3d.com. I tweaked the atmosphere/light settings and chose a sunset atmosphere with radiosity lighting. I also placed spotlights in the scene to create patches of sunlight on the grass.

"My inspiration for this scene was really from fine art landscape paintings, and photographs of country cottages and rural settings. Vue is really the best software for creating natural 3D environments"

"The final render took about 20 hours and had a resolution of 5000 x 5000. It does bring problems, though, as I have to render the scene in stages or strips and then stitch them together in Photoshop. There isn't enough memory capacity to render the scene in one go"

Software used in this piece

Vue Photoshop

Model, texture, light, rigging and render

Step by step: Bringing a games hero to life

Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Kurt Miller

3DArtistonline
Username: KMIStudio

Personal portfolio site www.kmistudio.com

Country USA

Software used Bryce 3D, Poser, 3ds Max and Photoshop

Expertise Kurt was an airbrush artist for more than ten years, and his works now consist about 95 per cent of 2D and 3D computer art

The Duke 2009

> For those illustrators who aren't 3D savvy but want that look for their art project, read these short steps of *The Duke*

Kurt Miller is a freelance illustrator

I have always been a fan of *Duke Nukem*, so when I got the phone call to create a cover for the long-awaited game by Apogee Software, I thought the fact that Duke was coming back was too good to be true.

In this article, I'm going to explain how I created the new *Duke Nukem* cover using Poser, Bryce, a bit of 3ds Max and Photoshop. With this mixture of software, my intention was to create a classic airbrushed *Duke Nukem* box cover from the early Nineties by applying my own vivid colour palette with some added action punch. As a commercial artist, I often have a tight timetable, so I can't afford to prepare a model that will render more than a day, or even worse a whole week. To make this happen, I keep my shader tree short and simple and manage the lights carefully so I don't bog down the system, like lowering the Irradiance Caching.

Concepts

Rough ideas to final design

01 This is a rough sketch showing Duke as the central focus. It's important to show Duke's character traits of confidence and strength in my roughs before I start with the final rendering. After modelling and posing the Duke figure, I submitted a colour rough render to the client so it could get a good idea of what its cover should look like.

02 In order to get a good Duke lookalike, I searched on the internet (Google is an invaluable resource for this) and collected a various array of references to study from.

03 I began modelling Duke from my rough sketch using DAZ Studio's David figure base. The good thing about the David figure is the muscular morphs, as my Duke character obviously needed to be ripped with muscles.

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Software used in this piece

Bryce | 3ds Max | Poser | Photoshop

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Artist Showcase

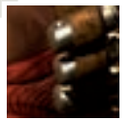
Kurt Miller

Kurt Miller has been in the visual communications field since 1990, and eight of those years Miller spent as an in-house illustrator for a couple of game companies. Currently a self-employed illustrator, you can find Miller's work on sci-fi/fantasy book covers or on adventurous computer game covers.

Railroad Tycoon 3 **3ds Max, Photoshop and Bryce**
"I created this image when I was an in-house illustrator for Take-Two Interactive back in 2003, and it remains one of the pieces of my art that has won the most awards from my portfolio"

Hammer's Slammers **3ds Max, Photoshop, Bryce and Poser**
"This is a cover art for a reprint of David Drake's *Hammer's Slammers* series. The hover tanks were done in 3ds Max, then imported into Bryce where I also textured the tank. An Israeli Merkava was my reference in modelling these futuristic hover tanks. Postproduction work was done in Photoshop with a Wacom tablet"

The Red Dragon Symphony **3ds Max, Photoshop, Bryce and Poser**
"This is an image of my wife playing the violin. The violin was created in 3ds Max and the Millennium Dragon was modified in it, too. The castle was created in Bryce, as was the environment, and my wife was created in Poser with texture import"

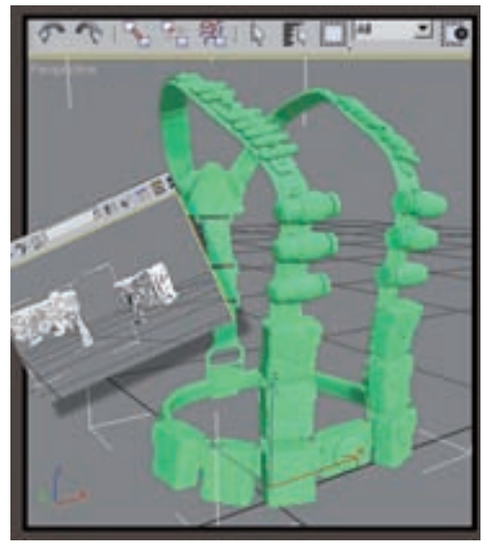


Modelling

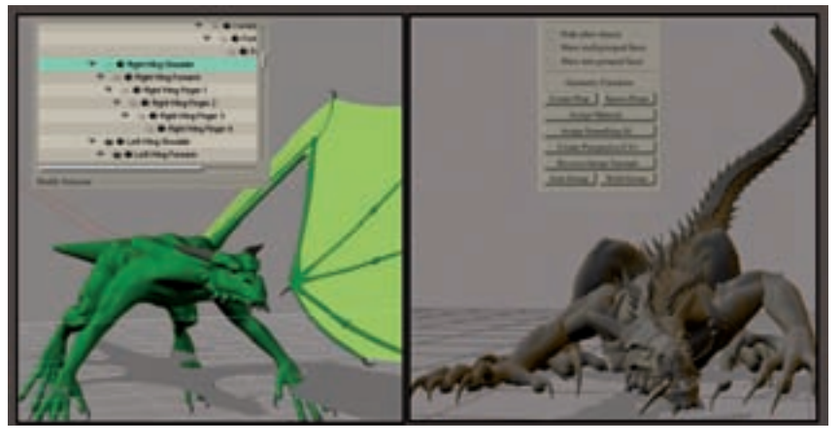
Creating Duke, his accessories and enemies

04 **With the body** complete with massive muscles, it's time to move onto the head. As with the body, I used the Deformer tools (magnets, force fields, waves and morphs) to shape Duke's head. By referring to my references, I mostly used the Morphing tool to achieve this Duke lookalike.

05 **Other than Duke's** ammo belt, his clothes are pretty generic, so I simply purchased his gloves, shirt, trousers and boots through DAZ Production. I then conformed the clothing to the Duke model and used the Dynamic Cloth setting in the Cloth Room, which gave me a more realistic look.



06 **The ammo belt,** on the other hand, had to be custom-made in 3ds Max and then imported as a Wavefront OBJ file to Poser. I consider myself more of a 2D artist than a 3D modeller, and I knew that building the belt accurately would be a big challenge that could take some time. To meet my deadline, my backup plan was to paint the belt in after the final render, but only if I failed in modelling the belt or if it began to take too long. Many thanks are due to my 3D artist friend Brian Weber, who helped complete this belt for Duke. The guns are Utilize models, which I modified in 3ds Max.



07 **The closest look** from my alien sketch was the Millennium Dragon, which could be modified in Poser. Under the Hierarchy Editor menu, I selected the dragon's wing from the palette list and closed the eye that would hide the wing. As with Duke's head and body, I used the Deformer tool to reshape the dragon as an alien from the sketch.

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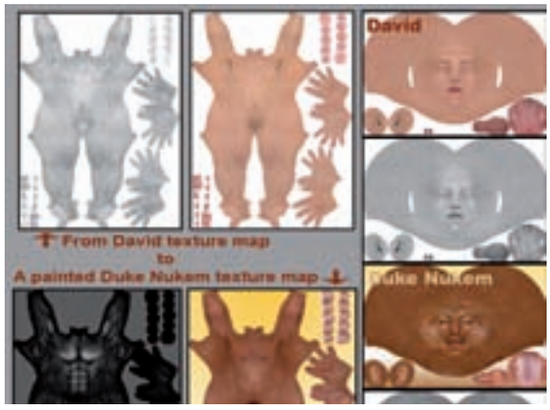
Final touches

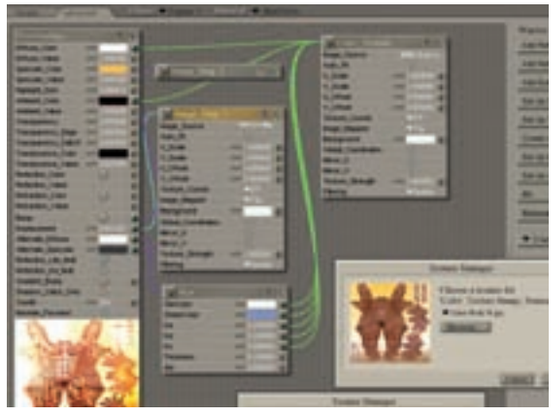
Paying attention to details

08 Next up was working on the background in Bryce. Since the explosion is taking up most of the space, I only had a little to do. I modelled a few buildings in the distance, while it didn't need a whole lot of texturing. The dead aliens can be created in many ways in terms of importing them; one way is to import them as a DXF file (but you will have to retexture them and edit the mesh to smooth or unsmooth), import them via DAZ Studio, keeping the original texture, or not at all and work with them in Photoshop, but you will need to make sure the lighting is consistent.

09 Once the figure modelling, the background and the poses were complete, I had enough completed to make a few cover roughs for the client. I normally submit three or four roughs to allow the client to select one or possibly combined portions of multiple ones for me to revise a final rough.



10 Next, it was time to pay attention to detail. Since I started with the David figure, I could open David's template to texture it. I created a new texture by replacing David with a look that is more something like the Duke from my references. I also redid the Bump map simply to disturb the body's normals.



11 In the Material Room, I selected the Advanced tab and the above settings for the Bump map using Displacement from the root node of the Shader window. I also created an additional node as skin for my Color Texture map setting from the Alternate Diffuse and Specular to be used with my custom lighting.

Lighting

Because my background was a separate render, I needed to do a light test by importing the Duke model into Bryce. I then had a good reference in setting my light props for Poser. I made a bunch of test renders, colour changes and intensity value settings of the assisting lights, because good lighting is the key element of getting your scene to look right when you render it. If you created something that looks good while testing your light, be sure to save the result to your runtime. I also enabled the Ambient Occlusion box for my selected lights. Enabling the AO causes the small shadows to appear where surfaces meet together. This will create a realistic look as well as add some depth in your image.

12 This is the nuclear explosion that will frame Duke. It actually took some time to paint and was very tedious! There should be a lot of good eferences on the internet.

13 Using the Firefly Render Engine technology helps to create a realistic render in little time. To keep it good enough for postproduction work in Photoshop and to cut render time, take a look at my preferred settings shown here. After a two-and-a-half-hour final render, it was time to spice up the 3D Duke in Photoshop, again calling on my painting skills to work up those details in the clothing, flesh and painting Duke's hair.

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behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info

Shraga Weiss

3DArtistonline
Username: shraga

Personal portfolio site
www.shragaweiss.com

Country USA, Israel

Software used Softimage, ZBrush, Mudbox, Photoshop

Expertise I try to create 3D sculptures that contain subtle qualities and nuances of anatomy as well as specific facial expressions that lend character to a model. I am always seeking to advance my craft. CG is a great medium but I believe it's important to hone my abilities in more traditional artistic mediums, such as drawing, painting and sculpture

Modelling, texturing, rendering

Software used in this piece

Softimage | ZBrush | Photoshop | Mudbox

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Create a classic portrait

Louis Bertin 2008

> My goal was to create a 3D interpretation of a classic painting, one by Jean-Auguste-Dominique Ingres, a 19th Century neoclassical painter

Shraga Weiss is a character modeller at ImageMoversDigital in California

In this tutorial, I will retrace and explain the steps I took to create a CG model that has painterly qualities. The model is based on an old master's painting, Louis Bertin by Jean-Auguste-Dominique Ingres. The goal was to try and emulate Ingres's style through the medium of CG. This is a very different process than trying to create CG that looks photoreal since a painting has different qualities of tone and light than a photograph has.

I think the reason I am so in love with classical painting is because I have a background in oil painting. I was classically trained in academic painting before turning to computer graphics, and in the past have made copies of these types of paintings using traditional mediums. I find it exciting to make a copy of a painting where I can bring the image to life in three dimensions.

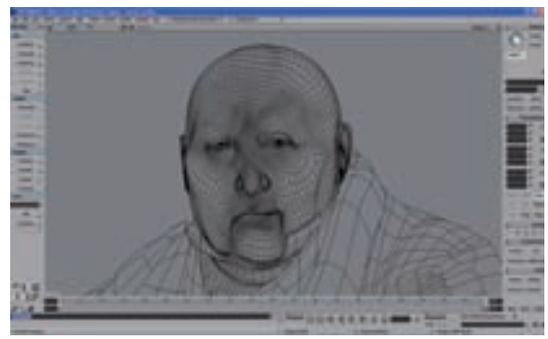
In creating a piece of this style, the challenge is to try and manipulate the modelling, texturing and lighting in a very controlled way to achieve the final look.

01 Examine the original painting

What struck me most about this painting was the character in Bertin's face. It almost seems as if he is ready to pounce at any moment from his chair. The wonderful asymmetry in the face and his very formal expression are priceless. I was also intrigued by his hairstyle, the way that the wisps of hair frame his face.

I love Ingres's precise style of painting. He is one of the finest draftsmen in art history. His paintings almost look like refined drawings and his application of colour spots is very sculpture-esque in nature. I just hoped to do it justice and was always inspired by it as I was working A.

A I chose to re-create this painting by Ingres because of how striking it was to me when I first encountered it



B You can see how the wireframe is drawn with the flow of the face features

02 Block out the base mesh

I like having a base mesh blocked in as closely as I can in volume for what I'm aiming for as my end result. This is because if you rely too heavily on ZBrush or Mudbox, you can end up with topology that doesn't complement the final intention and it becomes impossible to work in certain detail B. That's why I try to have the topology support the main features of the anatomy of the subject. This is also useful if I ever want to create face shapes that would allow me to animate the face.

03 Mudbox

After creating the base mesh for the model in Softimage, I moved into Mudbox for initial sculpting. Usually, I would try to keep the model symmetrical for as long as I can before breaking symmetry. In this case, the model is so asymmetrical that there was hardly a need to worry about it. I tried to get the model as close as possible to what I wanted it to look like on low subdivision levels. This is because the underlying structure of a model is what makes it work and fine detail is just the icing on the cake that makes it look tight.

04 Matching angles

In order to make sure that the model was looking right from all angles, I referenced quite a few of Ingres's paintings to get a good idea of what this guy might look like (through Ingres's eye) in 3D C. I also referenced general heads of heavy men I found on www.3d.sk, which helped to figure out the anatomy of the head and hands.

Modelling the figure

Modelling this character was a big challenge due to the fact that I was trying to match the painting's angle as closely as I could, as well as retain the same feel to the structure from other angles. In order to stick closely to Ingres's style of draftsmanship, it is important to be very specific with the accuracy in the geometry of the spot and the quality of the edge. Where two colour spots meet, they form an edge that has a certain quality – mainly how sharp or soft it is. Observing how edges break is an important part of the process of copying a painting.

A challenge while modelling were the cloth wrinkles. The only way to achieve crisp-looking cloth is to have at least the major important ones modelled into the base topology. On this project, I modelled 80 per cent of the wrinkles in Softimage. However, now I would rely less on traditional modelling and more on Mudbox.

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Lighting and rendering

When lighting the model, I was trying to match what I assumed was the lighting in the environment that Ingres had painted in the original portrait. Also, I had to take into account that Ingres probably took artistic licence and altered what he was seeing to create a certain visual statement. It was a misconception to expect that if I placed certain Spot lights in the right position in conjunction with an HDRI, I could replicate this environment in the same way that CG lighting is done in, say, visual effects.

For these reasons I did not use any HDRI or Final Gather techniques. Instead, I created various lights to fake a look that is very controlled to make it seem more like a painting.

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C Trying to make Bertin look like himself from other angles was something of a guessing game

05 Model the clothes

Modelling cloth is a rather tricky process. If done with traditional modelling, it is very time-consuming. If done strictly in high-res sculpting in Mudbox or ZBrush, the results might not be as crisp and are very hard to control. In this case, I modelled the jacket and trousers entirely with traditional modelling and I only sculpted the small wrinkles on the shirt in Mudbox D.

06 Hair groom

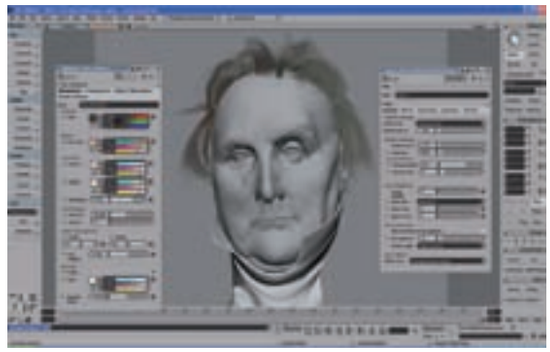
Creating CG hair is a very tedious process. This project was certainly a learning experience. The patches of hair strands were generated from polygons and brushed individually with various different techniques to create the frizzy look of Bertin's hair E. Then I manipulated every batch of hair in terms of its kink, density and length. The hair is controlled by guides that are brushed, and they represent what the final render might look like. Using guides is, of course, a much more manageable technique than brushing each individual strand of hair.

07 Hair shader

The colours in Bertin's hair seem grey but, in fact, they are quite rich and varied. The parameters to control the colour and look of CG hair are vast F. There are Root and Tip Color parameters and their blends. A final believable look cannot be achieved without the creation of Density and Cut maps. These maps determine the specific look of the border between the hair and the scalp as well as the random variation in length.

E At this point, I was happier with the way the model looks from other angles than I was about the groom

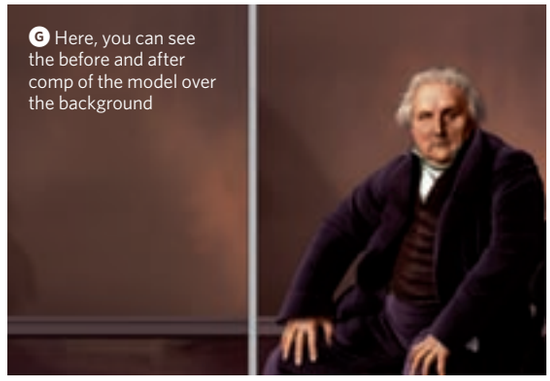
F The shader windows displayed here are the attributes of the specific batch of hair selected



08 Comp in Photoshop

Throughout the modelling process I would create test renders and impose them on a hand-painted background that I copied from the original painting. I did this in order to get a sense of whether I was getting to a point where I thought the model made sense as a hand-painted creation juxtaposed with the flat background G.

D It is clear from this shaded render that the cloth is modelled traditionally. Today, I would add some more organic sculpting to the process



G Here, you can see the before and after comp of the model over the background

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Artist Showcase

Shraga Weiss

I was born and raised in Jerusalem, Israel. I studied art in various forms, including under the direction of Israel Hershberg of the Jerusalem Studio School. My childhood passion was for drawing and painting, but I was always fascinated with the world of digital art. My dual American citizenship allowed me to pursue a career in America, and in 2005 I moved to Vancouver to study CG at the Vancouver Film School. Since then I have been working in the movie industry as a character modeller.

After The Bath **Softimage, Mudbox, Photoshop (2008)**
This is probably my favourite piece I have done so far. It's based on a painting by William-Adolphe Bouguereau. Here, I didn't try to copy it but rather used it as a reference to create something that looked more like a sculpture

Portrait in clay
At ImageMovers, I am currently studying sculpture under the instruction of the renowned sculpture artist Richard Miller. I am really trying to push my abilities in traditional sculpting since I believe it to be the best way to advance my CG sculpting skills

Marlon Brando **Softimage (2007)**
This one is also based on a painting, this time by Sebastian Kruger. Again, the aim was to try and make it look like a Kruger sculpture from all angles

> "Creating only Spot lights without Area lights will create very sharp shadows and light"

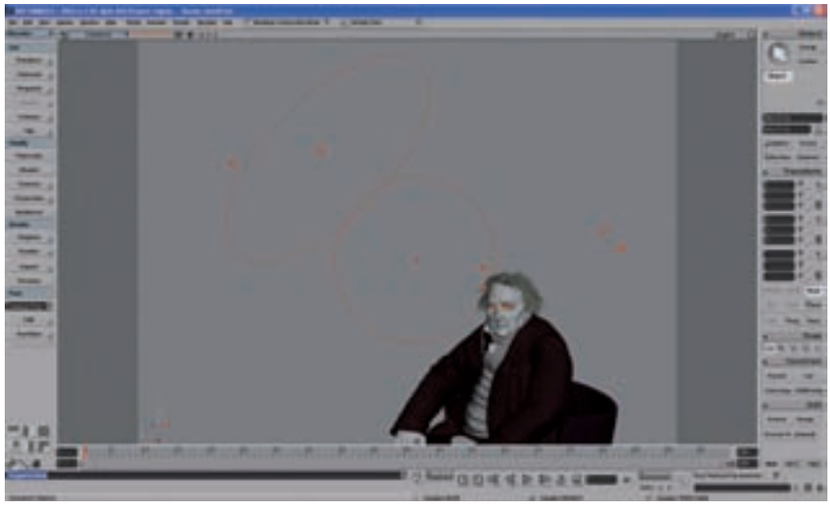
H The Area light on the left is the key light for the image. The little lights around the eyes add a kick for specular highlights

09 Lights

The first thing to do when setting up a lighting rig for a model is to find the appropriate angle of your key light. This is the main light that sets the tone for everything else.

The easiest way for me to judge the placement of the key light was based on the observation of the shadows in the painting – specifically the angle of the drop shadow under Bertin's nose H.

After nailing the position of the key light, I started adding Bounce lights as necessary. Certain specific highlights that are in the painting, such as in the hair or in the eyes, demanded the addition of specific inclusive lights that emit only specular highlights.



10 Area lights

I love Softimage's Area lights. They are very easy to use and aren't too costly in render time. Creating only Spot lights without Area lights will create very sharp shadows and light. Since the lighting mood of the painting is quite soft, I discovered that I had to generate Area lights out of most of the Spot lights in the scene. I evaluated how wide they needed to be mainly by the quality of shadows that they produced and the break-up of that shadow's edge.

Textures

Creating textures for a piece like this was actually the easy part. In a painting there aren't really that many skin surface details, such as pores and freckles. For the render to work, the general surface colour of the skin needs to blend correctly with the lights in order for the final result to be believable. Here, I hand-painted all the textures.

11 Velvet shader

To create the velvet on the trousers and jacket, I found a default velvet shader in Softimage's library. When I first tried applying it as default, it looked pretty awful. My solution was to mix shaders; Softimage allows you to mix up to eight shaders together. In the process, I could choose certain effects of shaders that I want Softimage to ignore and others I wanted to add, etc I.

I Bump, Color, Specular and Wear were the texture maps I created to plug into the Phong and velvet shaders

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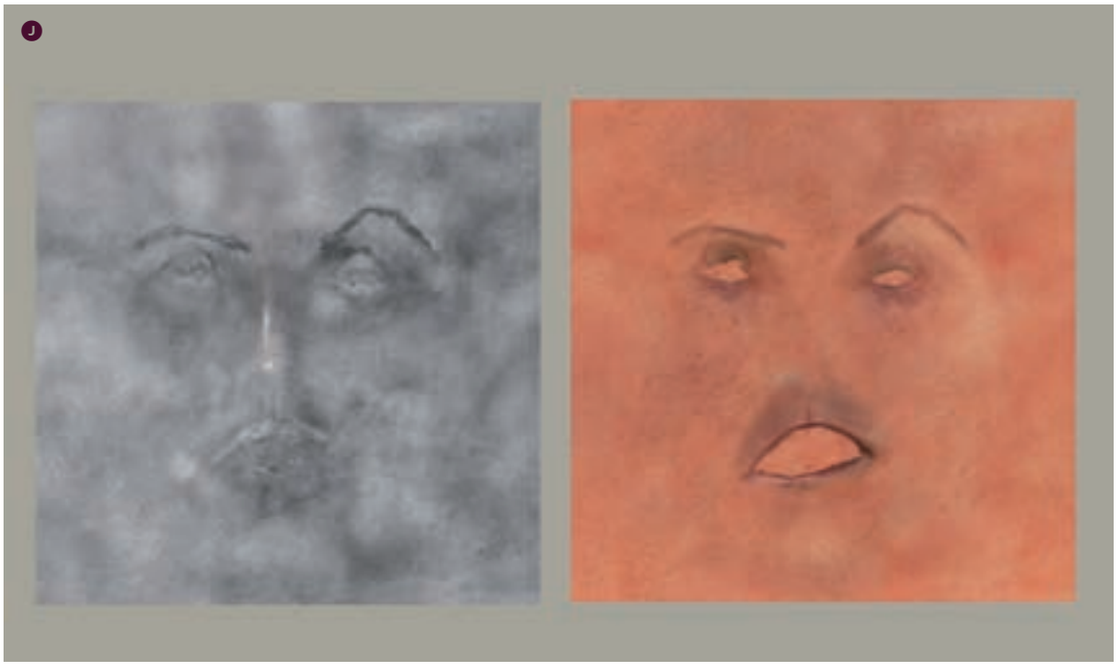
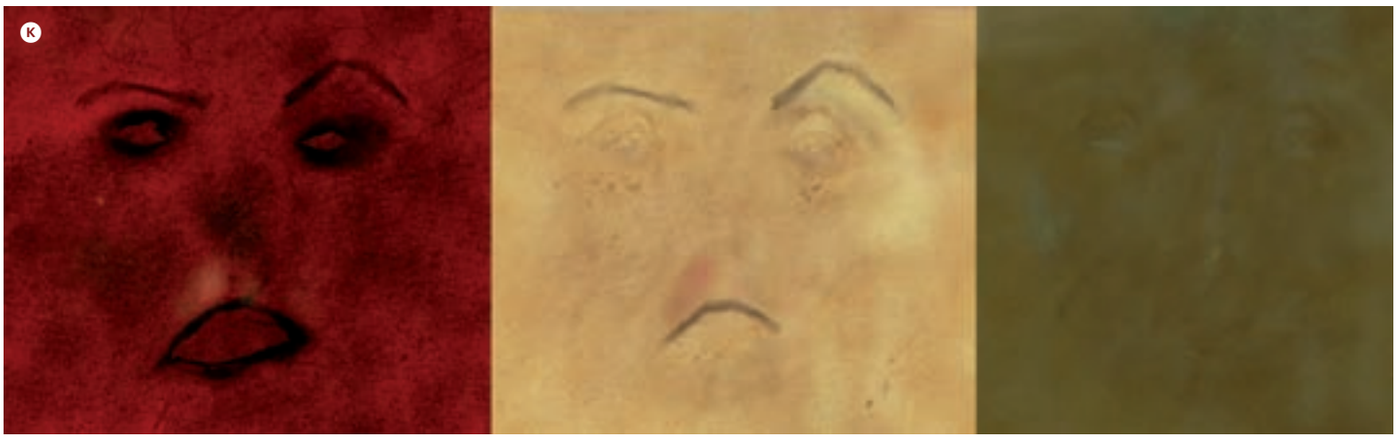


Rendering

For the render, I created separate render passes for colour, spec, occlusion and hair, as each of these elements is easier to fine-tune later on in postproduction with the help of colour correction. As expected, the biggest rendering problem is the hair pass, which is part of the reason I wanted to render it separately. No Final Gather or HDRI passes were necessary for this project.

K These are the Epidermal, Subdermal and secondary Specular maps



To create this velvet, I mixed it with a Phong shader and controlled the degree of the mix with Weight maps.

12 Spec colour

For the colour, I used many blends and layers of different noise effects and skin tones in order to create the grainy look of paint. For the Specular map, I carefully studied to see where there were highlights in the painting, such as on the nose, the forehead and the chair, then emphasised those areas. The Bump map was created to generate a general subtle effect on the skin and cloth J. This is because I managed to get a lot of the small detail with Mudbox into the model beforehand.

L Softimage's shader network isn't too complicated

> The goal is to have control over every aspect of the final render and not let the computer do the work for you

13 Subsurface textures

Epidermal, Subdermal, Back Scatter and two types of Specular K. The mental ray skin shader is quite robust. As a general rule, all the subsurface maps I create have an overlay of the Color map to keep them consistent. The Epidermal map is very similar to the Color map with a yellowish tint. The Subdermal usually contains the cooler colours of the skin and the Back Scatter represents the real bloody and veiny layer of the subsurface effect.

14 Shader network

It may look scary how everything plugs in together under the skin subsurface shader, but the only thing that might not be self-explanatory is the idea of Weight maps. I find that I have to control the weight of an effect of certain subsurface maps on the overall skin L. The goal is to have control over every aspect of the final render and not let the computer do the work for you. Subsurface scattering is a very complex effect and it is vital to separate control over every layer individually.

4 hours
Render time
Resolution:
3,000 x 2,555

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The Advisors

Lighting
Lance Hitchings
www.hitchingsdesign.com

Lance is a guru on all things related to Maya. In this issue, he takes a look at getting a scene's lighting to look as if the room is being lit up by sunlight streaming through a window

Game design
John Hayes
http://zugok.cgsociety.org/gallery/

John works on characters for games at Sega in California, so there's not much he doesn't know about detailing low-poly models. This issue he's optimising game character textures

Interior lighting

"How do I light the interior of a building so that it looks like sunlight is coming in from outside?"

Emma Burrage Devizes, UK

Final Gather works really well under a couple of lighting scenarios. One is outdoors when FG rays are coming in from all directions and in sufficient quantities to adequately light the scene. The other is indoors when most surfaces are lit by direct light and FG adds bounced ambient light, similar to Ambient Occlusion. However, when an indoor scene is lit entirely by bounced indirect light coming in through a window, it's a different story.

In order to get enough FG rays to light the scene and smooth properly, you need a huge number of FG rays and an equally huge amount of smoothing. It still looks blotchy and your render time is going to take a huge hit.

A better solution is to use a Portal light, which was developed precisely for this situation. The Portal light is simply a rectangular Area light, which sits in the window and get its colour and intensity information from the environment through a mental ray light shader called mia_portal_light.

01 The problem

Our first render is with FG rays only, derived from our Physical Sun and Sky environment. Only a small percentage of the FG rays are actually making it in through the windows (A). In order to get enough FG rays inside the room to adequately light it, we have to increase the total number of FG rays to the point where

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growing community at www.3dartistonline.com

Hard surfaces
Lee Davies
http://leemale.cgsociety.org/

Lee works as a graphics artist in Dublin and is an expert at creating funky figures. In his spare time he creates celebrity caricature pics and here he answers your character-based questions

Environment
Daniel Lovas
http://lovas.cgsociety.org/gallery/

Daniel is a talented 3D artist who specialises in both CINEMA 4D and sci-fi images. This issue, he explains how to get a perfect dusk shot with lights emanating from a building in the scene

Photoshop
Lyndsey Hayes
http://lyndseyh.deviantart.com

Lyndsey has moved from our website to inside the magazine, answering your questions about using 2D programs and also what the benefit of using a limited colour palette is

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Post your worry on the Q&A section on our forum
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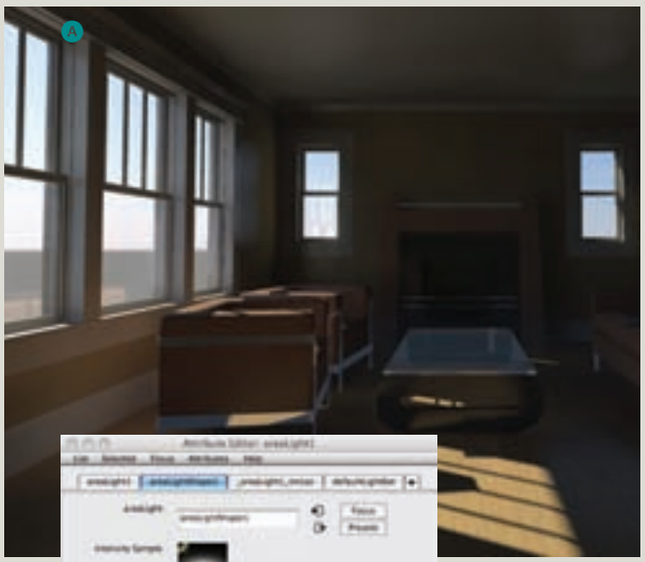
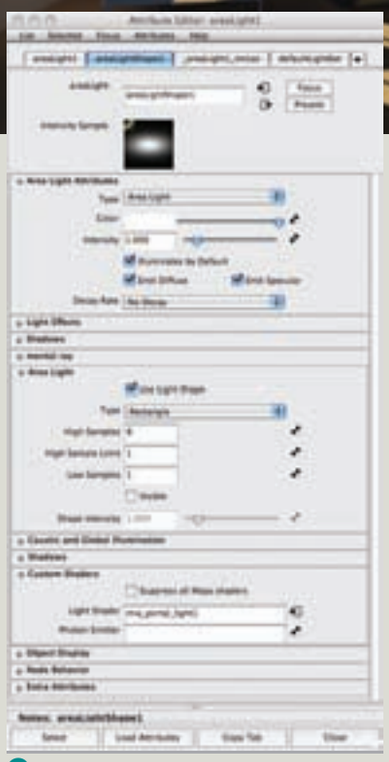




B

we start getting some very long renders. Additionally, the sunlight is bouncing once and the skylight not at all. All of this contributes to the darkness of the scene and the lack of detail in the shadows.

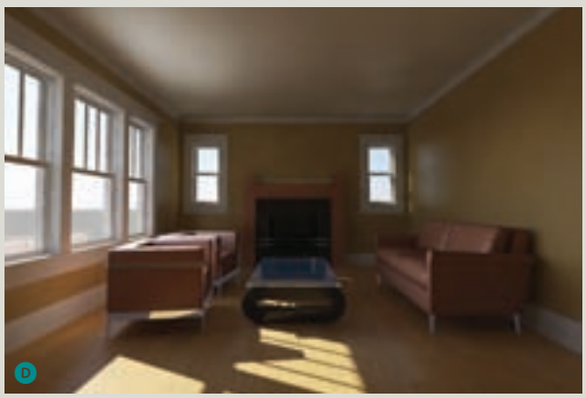
02 The solution

Create an Area light, scale it so that it's just slightly larger than your window and place it just inside the window. Open the mental ray tab of the Area light, scroll down to Custom Shaders and click on the chequered button to the right of the Light Shader slot. Scroll down to the mental ray light shaders and select mia_portal_light.

With the Area light still selected, under the mental ray>Area Light tab B, enable Use Light Shape, which forces the renderer to use the mental ray attributes connected to the Area light. The Visible attribute blocks the FG ray from both sunlight and skylight when on, which is what we usually want. However, in our experience it also sometimes blocks FG rays from bouncing back from inside the room onto the front of the windows.

03 An environmentally accurate light

Our next render is with the Portal light. Since the shader derives its attributes from the environment, the basic attributes of the Area light no longer work. If you want to make the light brighter, you must increase the value of the multiplier in the mia_portal_light shader. To change the colour, you must go back to the Physical Sun node and make the changes there. Using the Portal light automatically gives us an additional bounce of light at no cost. Although the room is not much brighter C, the level of shadow detail is much higher, and since there is no interpolation, the shadows are much more accurate.



04 More bounces means more light

Increasing the number of FG bounces now produces a result that was not achievable without the Portal light. In the final render, the number of FG bounces was set to 3. We now have a very high-contrast scene D, with texture in the bright highlights, detail in the shadow areas and physically accurate light bouncing around the room.

If you choose to turn on Photon Emission and use Global Illumination, the Portal light no longer emits direct light; however, it will shoot photons instead. When photons are enabled, the number of FG bounces is automatically reduced to 1, with the renderer relying on the photons for bounces.

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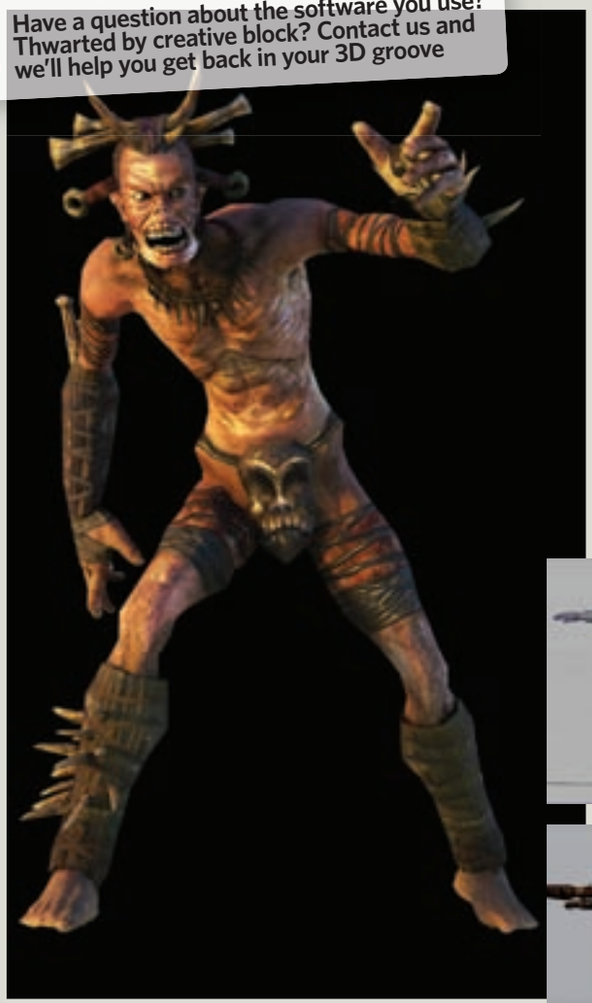


Optimising game character textures

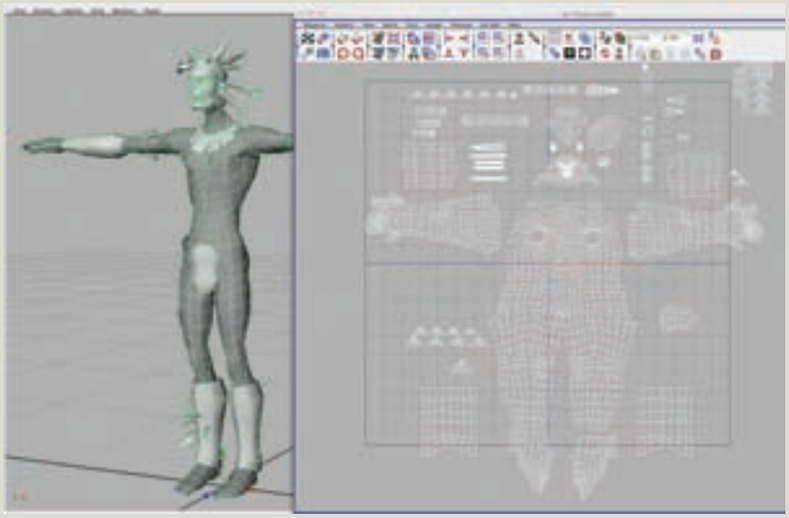
"How do I go about optimising game character textures with UV layout and mirroring to save memory?"

Alvaro Cabezas Malaga, Spain

Since videogame characters usually have to run in real-time at 30-60fps, they need to be constructed to work well within the capability of their intended game platform. A primary consideration for game characters is the amount of memory taken up when one is loaded into a game. For game models, texture space usually takes up the most memory. To reduce the memory usage and maintain a high level of detail, reusing textures and pixel space by either mirroring, repeating or careful positioning of UVs is important.

At the start of a UV layout, it is critical to know what the texture budget is for the specific character. If more than one UV map is used, try to organise the parts into similar colours or materials. Since pixel data is square, the careful positioning of UV shells to be as close to horizontal or 90-degrees vertical can help to retain detail, since angled detail will be affected more by sizing and compression than detail that is closer horizontal or vertical.

Finally, when creating your game character it is always important to maintain a good balance between using texture data for detail or actual polygons detail. In general, textures are used to describe the surface and polygons are used to define the form and silhouette.

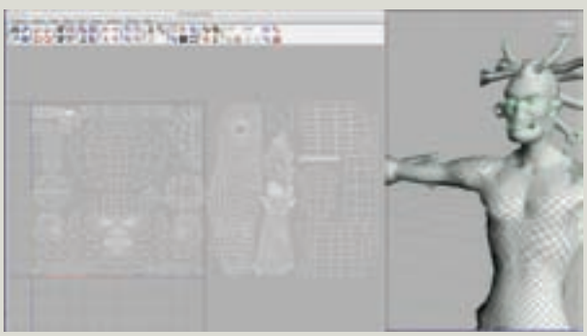


01 Determine what is important

Starting with all poly items' UVs unwrapped and all their UVs scaled equally between them, determine what parts can be duplicated and reused. In this case, the whole body could be mirrored and the arm wraps repeated. I prefer not to mirror heads, as that is usually the focus for the whole character. Note that the UV shells have been aligned as much as possible along the horizontal U or vertical V.

02 Removing and reorganising

Because texture space is limited, it is best to start with the largest shells first. The smallest are then placed last into the remaining spaces. Try to get all the parts roughly within the 0-1 space with few overlaps. For parts that are duplicated to reuse the same texture space, it might be easier to position their UVs after they have been overlapped together as a single group.



03 UV cleanup and tweaking

Once all the UV shells are roughly positioned, they can then be adjusted to better utilise the pixel space between them and still leave a several-pixel gap for image bleed. At this time I like to slightly scale up or down certain parts to get a better fit so that important parts like the head UVs would get scaled up and hidden, or less important areas – like UVs for holes or the bottom of the feet – might be reduced in size.

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Hard-surface modelling

“What’s the best way of modelling the hard surfaces of a robot character?”

Lee Soo Kim Kowloon, Hong Kong

Hard surfaces can consist of any sort of geometry, but are typically those characterised by smooth surfaces and crisp, well-defined edges used to create inorganic structures, whereas organic modelling describes more detailed sculpted forms.

ZBrush has certain limitations when it comes to breaking a model into pieces and creating sharp edges, as unlike Maya, it lacks the range of tools required to accurately manipulate edges, loops and individual points on a mesh easily.

I usually create base meshes in Maya before exporting to ZBrush for sculpting. Creased edges are established in Maya by adding edge loops close to corner and border edges to help maintain sharpness when smoothing or subdividing. The mesh may then be refined using ZBrush’s sculpting tools before being then re-exported to Maya, where edge topology is cleaned up further and subsequent texturing, lighting and rendering is applied.

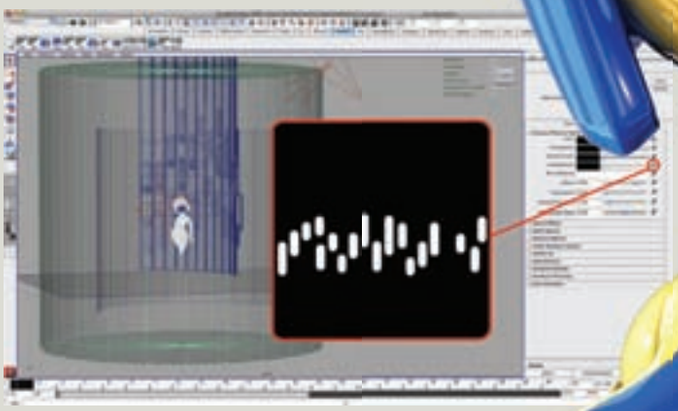
Panels

In this example, the body was initially modelled in one single piece using a combination of both packages before being separated into panels using Maya. Its polygon toolset allows very precise control over individual faces, edge loops and vertices, and so is perfect for splitting up a model in this way and for modelling hard surfaces generally.

To achieve smooth-looking poly surfaces, it is crucial to keep topology simple. Where detail is required, consider creating separate meshes and combining where appropriate. Avoid n-sided polygons; quads will generally produce best results, especially where ZBrush is part of a pipeline (three-sided polys have a tendency to pinch when smoothed, and anything with more than four sides will create all kinds of problems). Border edges of panels can be extruded to give the appearance of thickness, while crease edges can be inserted to ensure a suitable degree of sharpness is preserved when smoothing.

Normals

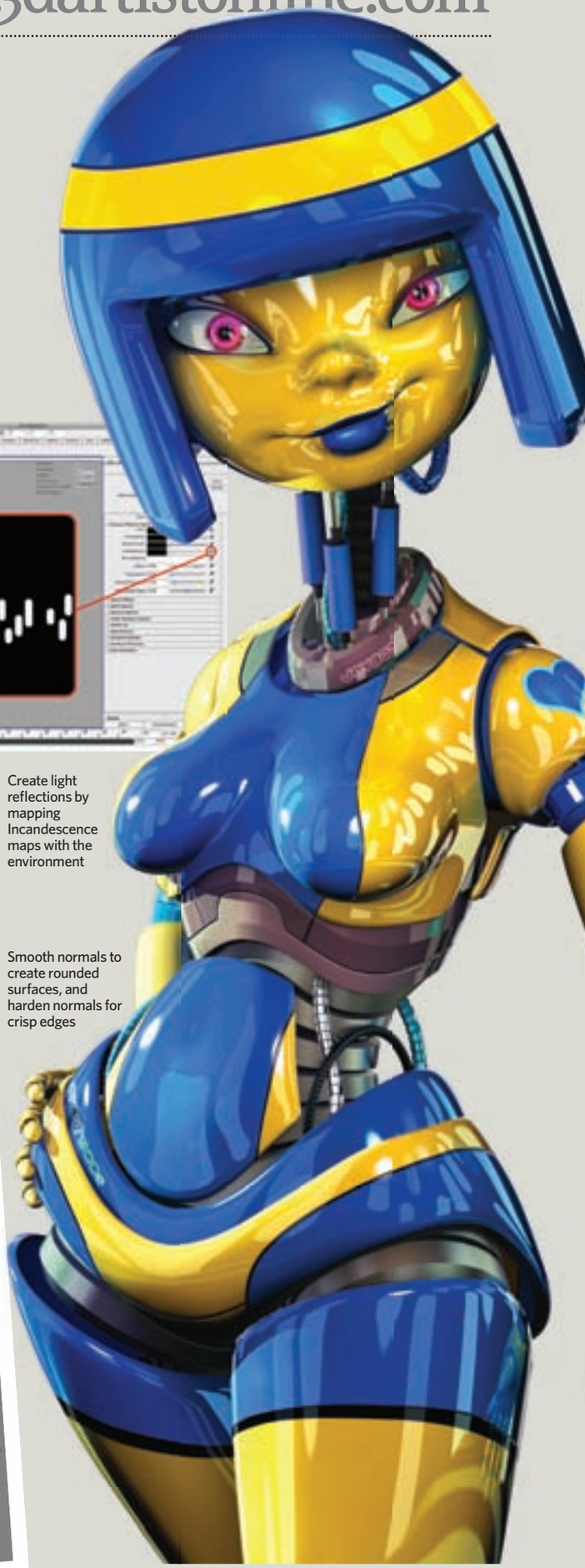
Normal angles will have a huge impact on the appearance of a mesh when rendered. Hard ones will produce sharp edges, whereas smooth normals will give the appearance of a continuous, even rounded surface. Smooth normals by selecting required edges and then applying the Normals>Soften Edge command in Maya.



Materials and lighting

Choosing a suitable material is vital to achieving a convincing surface. High specular and reflectivity values were used to give a high-glossy feel in this example (ie the mental ray mia_material with a 100% Gloss finish preset).

The reflections themselves were produced using these material attributes, combined with an Incandescence map featuring lights, which was applied to a simple lambert material assigned to a large polygon cylinder environment.



Create light reflections by mapping Incandescence maps with the environment

Smooth normals to create rounded surfaces, and harden normals for crisp edges

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Be there when dusk falls

"How do I get a scene to look like it was shot at dusk so that there are lights in the buildings, but also a general evening glow and light source in the sky?"

Kim Schützmeister Dresden, Germany

When thinking about creating an environment with a dusk setting, it is important to bear in mind that what evening scenes all have in common is the main light source low in the sky. It tends to have a yellowish or reddish cast, and there is a lot of blueish skylight in the shadows.

As you can more than likely imagine, there are a number of different possible approaches to re-creating this particular effect in 3D software, and almost all of them require the use of a GI rendering engine in order to accurately simulate the dispersion of light.

In this example, I'm going to describe a simple but rather accurate procedure that involves the use of a huge panoramic image as the base light source for the scene. The most appropriate image format for this purpose is a high-dynamic format, like HDRI (high dynamic range imaging). CINEMA 4D can be tricked into using an ordinary 24-bit image instead, but the explanation would be well outside the limits of this tutorial.

You would be able to create a panoramic HDRI background image of a sunset using a camera on a tripod (which would be a rather complex procedure!), or alternatively, you can use your copy of CINEMA 4D to create all the background elements. But a much simpler, much faster and generally better solution is to use a 3D landscape generator software for that. So it is probably lucky that I am about to go through what you need to know for that!

Villa Madeira is Lovas's 3D representation of a luxury residence on a private island in the world of Atlantis

01 Generate a panoramic background

Any decent 3D landscape generator offers a panorama option and a number of predefined sunset scenes, so you can use one of them as your starting point and then change it to suit your idea. The image ratio should be 2:1 and the size depends on the final render size and the camera angle. For example, 3,000px wide for the final image and, if your camera angle covers 45 degrees, your background image should be 24,000 x 12,000px.

02 Prepare the background material

Move the rendered background image to a folder inside the project folder. Prepare a material with all the channels off except for the Luminance channel, then load the image into the channel. Turn off Generate GI and Receive GI in the Illumination options. Name the material 'BG_visible'. Duplicate the material, rename it to 'BG_global', then go to the Luminance channel settings and change Blur Offset to 10%. Turn Generate GI back on.

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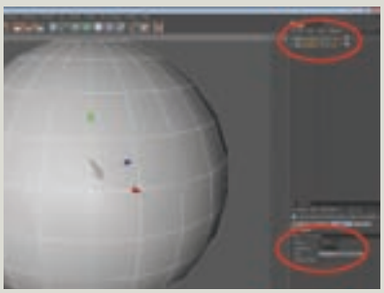

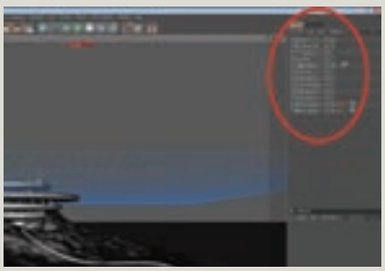

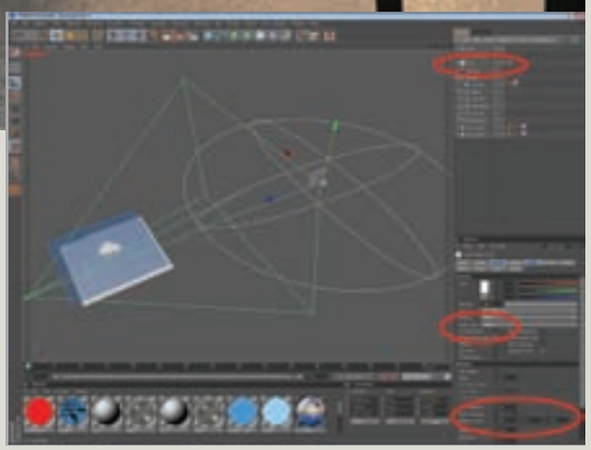

03 Background objects

Create a sphere, name it 'sky_visible' and enlarge it so that it surrounds the scene. Apply the BG_visible material to it then add a compositing tag. In Tag settings, tick off Cast & Receive Shadows, Seen by GI and Seen by AO. Duplicate the sphere, rename it to 'sky_global', change its material to BG_global and change the compositing tag settings so that only Seen by Rays, Seen by GI and Seen by AO are on.

04 Set up the scene

If the spheres are in your way, make them invisible in the editor by clicking their upper dots in the Objects manager down to red. Add the scene objects and then position your camera. If necessary, adjust the material of the ground plane so that it visually matches the material of the ground material, used for the background scene in the 3D landscape generator; there should not be a noticeable seam in the distance.

05 Add additional lights and rendering

Add a light with the Visible and No Illumination options on and name it 'Fog'. Position it far in front of the camera at a height of 0. Increase the relative Visibility scales so that you get a huge, squashed ellipsoid covering the horizon. Make a test GI render and then play with the other Visibility settings (including the colour gradient) of the light until you're satisfied with the distant fog effect. You may also add a distant light so that it matches the direction and the colour of the background image's sun spot. Render the final image as a 32-bit HDRI, then adjust slightly the exposure and the shadows in Photoshop before converting to eight bits per channel.

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3DArtist Your questions answered

Have a question about the software you use? Thwarted by creative block? Contact us and we'll help you get back in your 3D groove

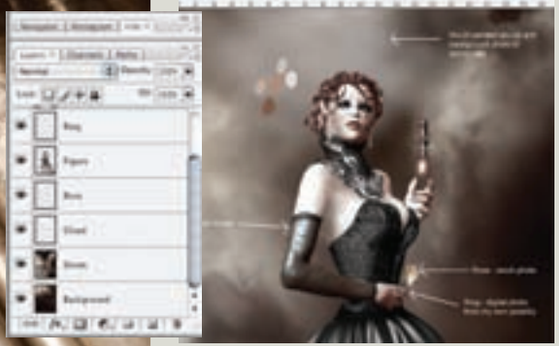
2D or not 2D

> Why is it that some artists use 2D programs as well as 3D programs? I'm just starting out and trying to see what software I need

Harry Wood Gloucestershire, UK

More often than not, when you produce your final render, there are elements of the image that can't be created within your 3D application, which can be somewhat limiting. Using 2D applications, such as image-editing and paint programs, can enhance or alter your image, giving you the flexibility to shape it into the picture you have envisaged. A huge range of different items can be added, deleted, imported or painted into your images, enhancing the existing render. You can also use 3D renders as part of striking montages, or combine renders to generate new images.

Image-editing programs are great for fixing minor problems with your renders. Lighting and colour correction in 2D are also quick and powerful ways of achieving stunning effects.



01 Bring components together
For this image, I imported several images – a stock background image of a stormy sky, a stock image of a rose and a photo I took myself of a ring from my own jewellery. If you have a digital camera, it's a great way to build a collection of textures and objects to use in image-editing programs with your renders.

02 Paint special effects
Programs like Photoshop and Painter have a wealth of brushes available for them that you won't get with every 3D program. You can get great effects in Photoshop with materials by using them on different layers. The skirt in this image is coloured using lace and fire brushes dotted over the skirt, each brush on separate layers, which are then set to Linear Dodge to produce the translucent effect. The gradient effects are created using masks.

03 Create new elements
If you don't like areas of your original render, paint over them. In this example, the hair is painted using purchased hair brushes for Photoshop. The headdress is also painted from scratch using a mixture of brushes I created and brushes made from texture photos of lace.

03 Dramatic lighting effects
In the example here, the lighting is very dramatic, deliberately so to convey the girl's sorrow. To achieve this effect, the F-X>Glow brush in Painter is great for creating strong highlights. Use a relatively low strength to get smooth shading. The Hurricane brush is excellent for enhancing cloudy background with swirls and disturbances and creating smoke effects. Using Tonal Control in Painter finishes this image with a burnt sepia effect.

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Limited colour palette

"I usually go for bright and bold colours, but is there any benefit to going for more subdued hues? Some images still look dramatic, though the colours are duller"

Samantha Gordon Seattle, WA

Using a limited colour palette is a great way to provide a specific emphasis in your art. This means you only use a few colours and their respective shades in your image to highlight certain areas, or make items in your image bolder and more prominent. A blue and silver palette, for example, is a great way to promote a believable sci-fi or robotic character, or a contrasting limited palette is excellent for making flora stand out against woodland or grass. A limited colour palette is especially important if you are creating a photorealistic image, as the colours in our skin are intrinsically limited and tend to be made up of subtle hues, shade and light.

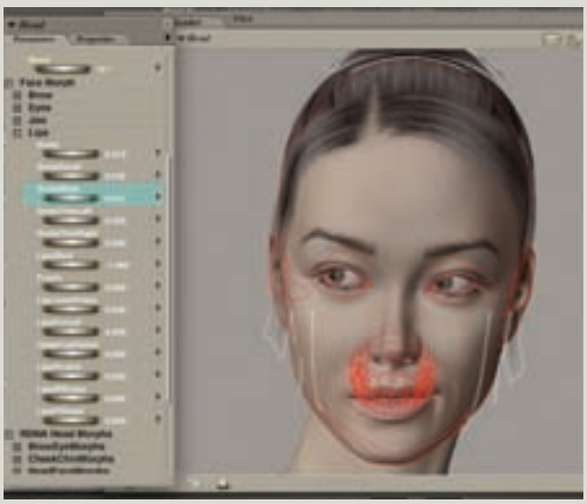
The image here was inspired by the expressions we use to communicate without speech. For the most part, when this happens we are using the eyes. So I wanted to specifically highlight the eyes so that your gaze is immediately drawn to hers. The skin palette is therefore even more subdued than I would normally use for a photorealistic portrait so that her eyes really stand out. By reducing the number of colours, I have been able to really control the focal point in the image.

01 Lighting

In your 3D app, add Infinite lights at varying strengths evenly around your model. Infinite lights shine light at the same angle and on the same side, creating an even skin tone.

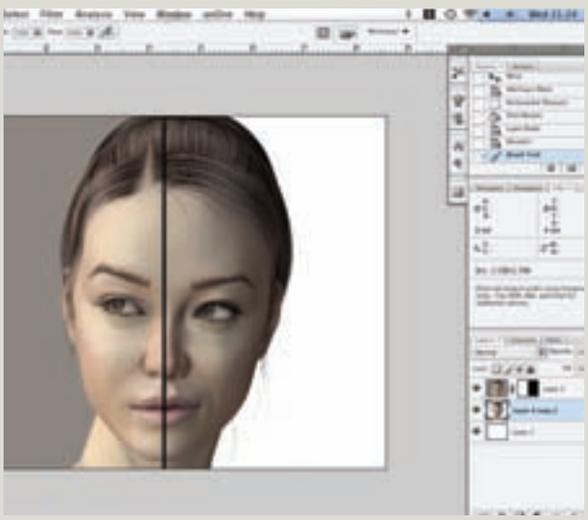
02 Texture

Apply or create a texture that has minimum or no make-up – it's a good idea to use a texture that has a matte finish to the skin so that the lighting does not create harsh shiny shadows on the skin surface and you get minimum variation in tone. Render your image with ray tracing and Cast Shadows turned on with a minimum shading rate of 0.1 for a sharp image.



03 Focal areas

In a suitable image-editing program, sharpen the hair and the eyes for extra emphasis. Using a small hard brush, paint light areas in the eye area and use the Dodge tool to bring out the eye whites, making the eyes the focal point of the image. Change the levels to slightly adjust the highlights, and then brighten the image.



04 Finishing touches

Once you have added your background, limit the colour palette further by either reducing the saturation of the image or, if possible (as in Photoshop), add a Hue/Saturation adjustment layer and adjust the saturation to your taste. Use a mask on the layer to hide the new saturation for the eyes and lips. Where masks are not available, use a duplicate of the original image to paint the lips and eyes back in. The result is soft tones with hints of colour in key areas of expression.

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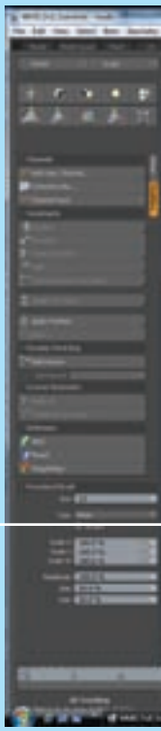
The render engine isn't poor by any standards



Animation isn't the program's strongest suite, but it has been improved in version 401

modo 401 $995

Modelling, texturing, animating and rendering, modo does it all. But is it a one-package studio or a jack of all trades?

Modo is a 3D application designed to cover all bases. It's a modeller, an animator and a renderer with a set of texture-painting tools thrown in, and it's aimed at artists, effects artists, designers, game developers and graphic artists. In other words, basically everyone doing 3D.

Although its integration into a studio's pipeline is important, modo is going to appeal more to those working alone – artists who have to do everything from modelling to texturing and animation, and would like to be able to do it all in one package. That's a big ask in an industry where most all-round artists will be constantly switching from ZBrush to a 3D application to Photoshop to After Effects.

modo's interface has a fairly complex layout. Its viewport is navigated with familiar Move, Rotate and Zoom icons at the top left, and it's fast and responsive. However, the top of the screen has three layers of menus, tabs and buttons, and the entire layout changes depending on whether you're animating, modelling, rendering or painting.

In modelling mode, the top row of buttons allow you to select and sculpt objects at a vertex, edge or polygon level, and control various aspects of your modelling. A panel to the left provides all the standard and subdivision modelling tools arranged into a vertical set of tabs. Underneath this, context-sensitive controls give you the options for whichever tool you're currently working with. To the right of the viewport, another three panels, each with their own set of tabs, give global control over your scene, its objects, cameras, shaders, groups and textures.

However, choose a different tab from the selection between the modelling buttons and the menu, and you switch the package into a different mode so everything changes.

All of which sounds rather confusing and overcomplicated. However, it's really not a problem. The basic structure of the scene with tools to the left, the viewport in the middle and global controls to the right doesn't change whichever mode you're in, and separating modelling from animation and rendering means you're not continually sorting through vast lists of tools you don't need. If you're not painting textures, you don't have to navigate colour palettes and brush controls. If you're not animating, you don't have a timeline sitting redundant at the bottom of your screen.

It's all well managed and tidy, and if you can't find something you need then it probably means you've clicked the wrong layout tab.

A typical workflow would see you working your way through the top tabs from modelling through texturing, layout and animation to rendering. However, there are a number of other layouts you can use if you don't like the ones provided.

Materials in modo are particularly nice, with a strong library complete with easy-to-recognise icons for a whole range of material types. Each one can be simply dragged onto

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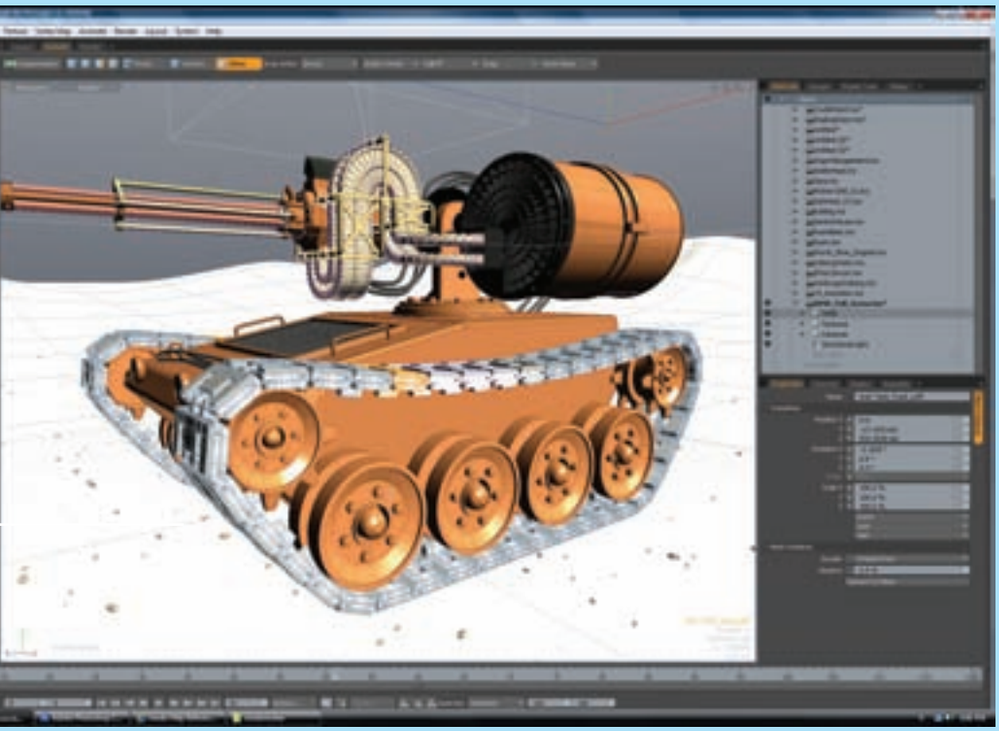


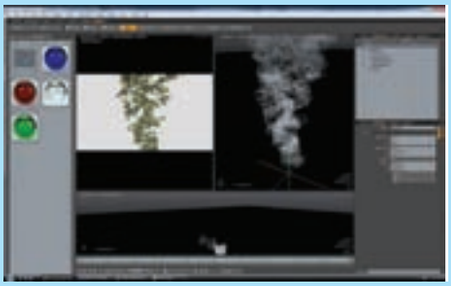
Replicators

The new fur tools will mostly end up being used for giving objects fur and feathers because it's so easy to do, but there's more to them than that.

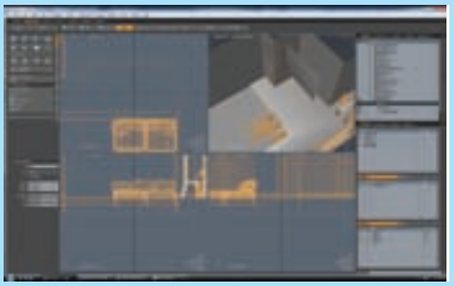
Hair is actually part of a larger set of features. Replicators now allow you to cover an object not just in fur and feathers but plants, people or any other object, and (theoretically) all without adding too much to your render times. You can use anything you like as a replicant using all modo's shading and rendering tools on it, just as you would a normal object, but it won't appear until you render.

In practice, of course, it's still a lot more work for the processor, but being able to add about ten thousand city blocks to a landscape without having to have all that geometry in your scene, for example, is a great help.

Preview
Automatic preview rendering means you can always see how your final image will turn out



Particles
There isn't a particle system of the normal kind in modo, but you can create similar effects



Modelling
The layout changes depending on the task you're currently working on

an object. The library provided is both extensive and of high quality.

If you want to create your own materials, of course you can. The modo shader tree isn't the most intuitive set of controls to work with but it does the job, and most projects will be just a matter of picking one of the many presets and adapting it.

In addition to the normal primitive tools and subdivision surface tools (which are well implemented, well laid out and easy to use), there's a good selection of ZBrush-style sculpting tools. Creating a simple shape then sculpting with a range of brushes (which respond very well if you have a pressure-sensitive graphics tablet) allows you to build up complex organic shapes very intuitively.

These tools aren't up to the standard of ZBrush itself (although you do have an impressive level of control over your brushes) and the tools generally aren't as forgiving, but then there's very little out there that does this kind of modelling as well as

A special shader has been added for realistic car paint

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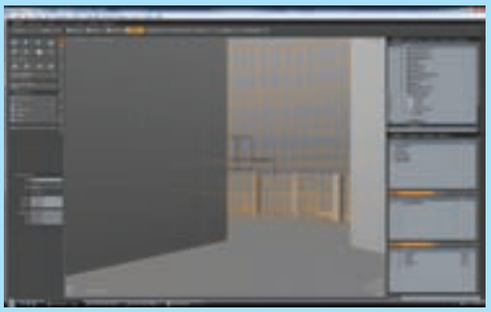
modo is capable of professional-level renders

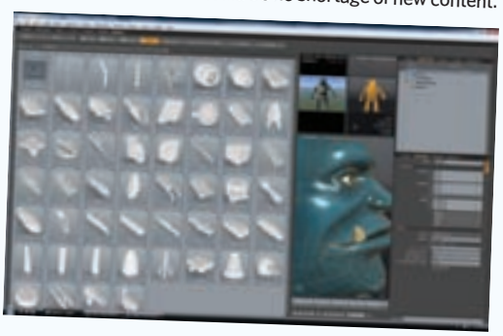


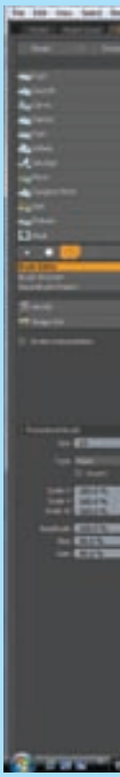
Supporting materials

modo comes with a 1.5GB download of content files and they cover a whole range of sample scenes, giving a fair idea of what's possible with modo. The content also includes an impressive collection of presets.

These presets include material shaders ranging from car paint to animal fur. There are also indoor and outdoor environments for global lighting, as well as a library of instantly usable models, including a Lego-like collection of spaceship parts – from which to construct your own fleet – some low-poly vehicles and plants for populating scenes and even a selection of base heads to construct your characters. But presets are also included for edge profiles, spline shapes, brushes and all kinds of other content.

Luxology has also introduced a website where you can exchange additional content you've designed with other modo users, so there should be no shortage of new content.





ZBrush. modo's implementation is about as good as any other general 3D application's, and it's better than most.

Another powerful feature that makes modo stand out is its ability to paint textures directly onto your models. It's not the most developed paint engine out there, but it uses Photoshop-style layers and the same brush-editing tools as the sculpting features; once you're comfortable with the tools in one area, you'll be able to use them in the other.

The point here is that texture painting is rarely included in 3D applications, and modo's implementation of it makes the whole process of modelling slightly smoother. Even if you do have to switch to a paint package to add fine details, the ability to smooth out seams and paint rough textures will save a lot of time for anyone involved in modelling.

modo 401 has new tools that let you paint on view projections, so that brushes won't distort based on your UV co-ordinates. Brushes now also work more smoothly with a new stroke interpolation function, so fast brushstrokes will be better described.

The bane of most 3D artists' lives is test renders. Having to continually render and rerender previews of your scene as you work – just to see if a slight change in materials or lighting has improved the scene – adds up to a lot of waiting around for most artists.

3D applications have a range of ways to deal with this problem, and modo's is better than most. In addition to having pretty good real-time viewport displays of your work, there's also a preview render screen that continually updates as you work (if you're working in the render layout). This works in the background, so it's not always up to date if you're working on a complex scene, but it does mean you don't have to stop everything to render a test shot every five minutes.

Version 401 has improved the speed of the preview render and added progressive rendering, so the longer you wait, the better it gets. There's also now Global Illumination built into the preview renderer.

Animation is okay, but that's all. Inverse kinematics have just been introduced in version 401, but they're limited compared to specialist character animation tools. Particles are a bit of a fudge (you can create particle effects, but you have to go a long way around), and you can't do dynamics or soft body animation, although you can load in point-cached animations from other packages to get around the problem.

Some of the most important changes in version 401 are in rendering. Fur and hair is one obvious upgrade, and it's implemented as a shader so adding fur to a model is just a matter of using a fur material. It'll even adjust the number of hairs depending on how far away the camera is; if you've ever spent hours getting the hair count right on a model, then changed the camera angle and had to do it all again, you'll realise the importance of this.

You now can create Volumetric lights – a welcome, if overdue addition – and the renderer now supports both caustics and

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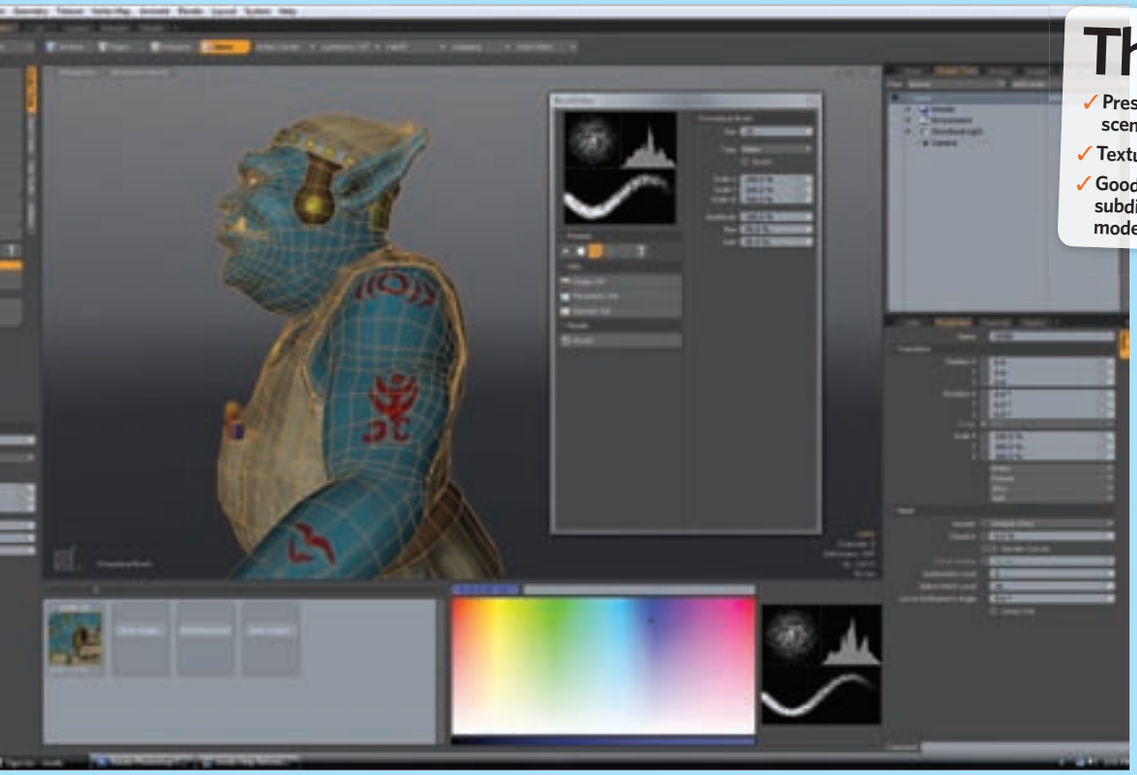


The good & the bad

- ✓ Presets make for easy scene creation
- ✓ Texture-painting tools
- ✓ Good sculpting and subdivision surface modelling
- ✗ No dynamics simulation
- ✗ No true particle system
- ✗ Animation isn't as good as the other features

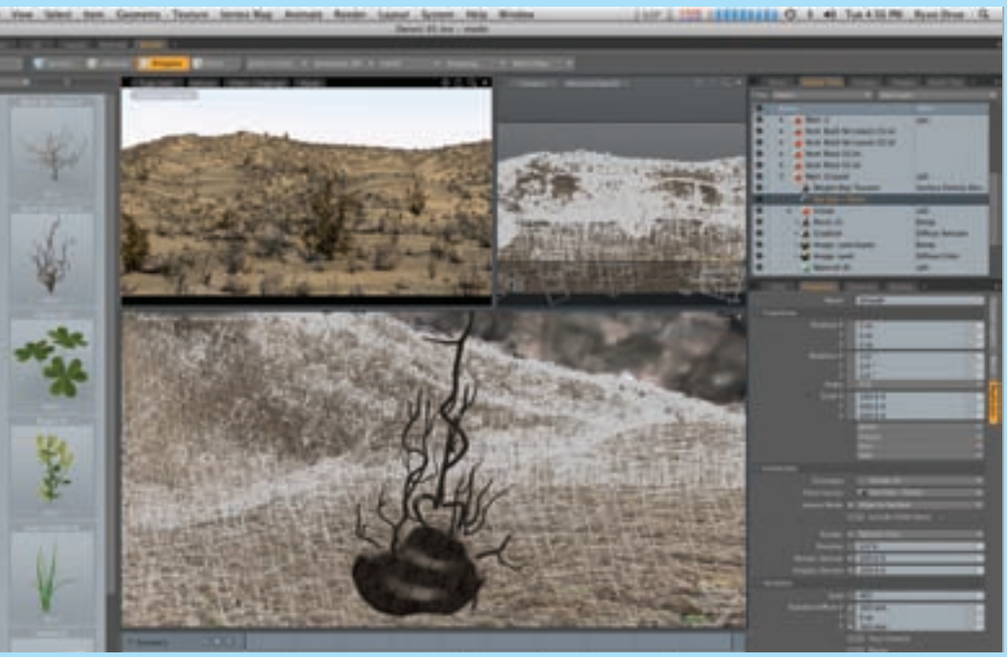
Essential info

www.luxology.com
$995 US

OPERATING SYSTEMS
- Windows XP, Vista, Mac OS X 10.4 or greater

OPTIMAL SYSTEM REQUIREMENTS (PC)
- Win XP/Vista (32- and 64-bit)
- 2GB of RAM
- OpenGL-accelerated graphics card capable of resolutions of at least 1,024 x 768
- Pentium 4 processor or better

OPTIMAL SYSTEM REQUIREMENTS (MAC)
- Mac OS X 10.4 or later
- Macintosh G5 or Intel processor
- 2GB of RAM
- OpenGL-accelerated graphics card capable of resolutions of at least 1,024 x 768



Above: Texture-painting tools are rarely included in 3D applications, but modo's are pretty advanced

Above: ZBrush-style brushes let you build up complex shapes

Left: The Replicator tool can do a lot more than create hair

blurred refractions; additionally, Deep Shadow maps are now supported. Deep Shadow maps are fast-rendering shadows that work with transparent and volumetric objects, the idea being that you get most of the benefits of ray-traced shadows without the render time.

Also new is a wide range of presets covering everything from materials to meshes. These allow you to quickly reuse content, throwing scenes together without having to constantly locate and import files.

All in all, modo is an impressive all-rounder. Its modelling tools are strong, both in terms of sculpting and subdivision surfaces. Its ability to paint textures is unusual, and automatic preview rendering will save a lot of time.

If you're building a studio, you'll probably find most of modo's tools are available in other packages. If you're working alone and on a budget – especially if you're working mainly with still images – it might well be worth a look.

Our verdict

Features	8/10
Ease of use	7/10
Quality of results	8/10
Value for money	7/10

> "Great for modelling, texturing and rendering. Not so hot on animation"

Final Score 8/10

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Grand Designs 3D: Self Build & Development £196

Do you have a hankering for designing your own abode? We put the latest innovative house construction 3D software through its paces

Furnish your designs with the catalogue of available items

Self-builds are growing increasingly popular among would-be homeowners, with more people opting to take full control over the creation of their dream house, from the initial idea to the final decoration. Of course, this is a huge undertaking that requires an incredible amount of meticulous planning, but there is help at hand for the amateur builder that doesn't involve a huge outlay.

While it's true that you could draw out the plans for your new home with a pencil, software like Grand Designs 3D: Self Build & Development is designed to bring your project to life, rendering it into a lifelike 3D model and helping you to visualise your plans with greater clarity. So how does it measure up?

To begin with, the software runs through all the basics, introducing you to the interface and tools available to work with. You then have the option of accurately designing your layout in 2D, positioning walls, doors and windows to your specifications – including particulars like cavity wall details – before being able to view a 3D model at the click of a button.

Once you've got the main structure sorted, there's a catalogue of textures, finishes and furnishings to take your design a step further, and you can even check how your rooms will look under different lighting.

With your design complete, you can walk through your new house, moving from room to room and making any final tweaks before generating detailed drawings that you can print, which – according to the manufacturer – are even suitable for planning applications.

The software is easy to get to grips with, and the amount of detail you can work into your designs is very impressive. The user interface is simple and uncluttered, with a drag-and-drop facility that's effortless to work with.

However, this obviously isn't a professional-grade piece of software, nor is it an excuse to sack your architect, and as such there are limits to what you can do by comparison. What this does represent is an affordable option that offers amateur CAD home builders a user-friendly alternative when planning and visualising their own projects.

Essential info

www.3darchitect.co.uk

OPTIMAL SYSTEMS
- PC

OPTIMAL SYSTEM REQUIREMENTS
- Windows XP (SP2)/Vista
- 1.4GB free hard disk space

Design your own custom windows and doors using the Window and Door Designer

Our verdict

Features	9/10
Ease of use	9/10
Quality of results	9/10
Value for money	8/10

> "An easy-to-use introduction to the world of amateur home design"

Final Score 9/10

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Xara Xtreme 5 Pro £199

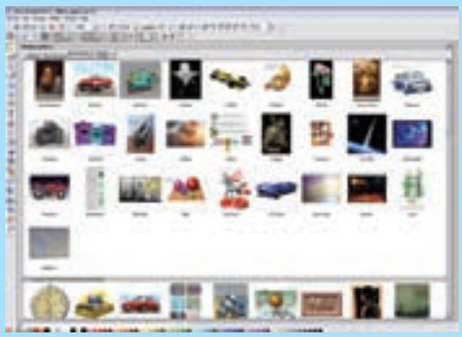
Impressive all-in-one graphics package

The introductory video that pops up on installing Xara Xtreme Pro 5 claims that it is the "slickest" and "easiest to learn" software, which will turn its hand to just about anything – and it's not far wrong.

The interface is simple to interpret, with all of the tools and options clearly labelled. There's a good range of sample objects, templates and animations for you to play around with in the first instance, or you can dive straight in and start your own design from scratch.

Xara Xtreme Pro doesn't just focus on one aspect of graphic design, as it has tools for just about every type of project, from website design and photo editing to Flash creation and vector 3D extrusion. Photographers are equipped with RAW file support, content-aware scaling and masking tools, as well as single-click auto enhancement.

Web designers are very well catered for, too, as Xara Xtreme Pro is capable of producing cross-browser, cross-platform (X)HTML with minimal effort on the part of the user. Using the fair range of templates provided, we were able to produce a web page layout that was ready to go online in a matter of minutes. The software generates HTML from your designs; you just need to determine where you want links to go to, and you can even include pop-up menus and rollover graphics without any professional web design know-how.



A comprehensive library of graphics, animations and templates are handy for getting you started

Xara Xtreme 5 Pro's 3D options aren't numerous, but it does offer an excellent facility for 3D extrusion of graphics that's quick and easy to implement. You are also able to anchor graphics to flow text in a seamless motion around them and automatically embed fonts for easier distribution and viewing on remote computers.

The software is responsive in use, and impressively fast when working with complicated graphics and intricate designs. Excellent for producing web content, illustrations and multipage documents in particular, it's a comprehensive program for graphics-orientated jacks of all trades.

www.xara.com/uk

Our verdict

Features	8/10
Ease of use	7/10
Quality of results	9/10
Value for money	8/10

"A responsive program that offers a comprehensive range of graphics technologies"

Final Score 8/10

Anime Studio Pro 6 £130

Have fun with anime from Smith Micro

Touted as the "all-in-one animation tool for professionals and digital artists," Anime Studio Pro 6 offers a versatile range of tools to create high-quality animations while promising to speed up your workflow.

Building on the success of version 5, the latest incarnation of Anime Studio Pro is the more expensive alternative to the stripped-down Debut version. Forking out extra for Pro will buy you a little extra functionality, but we're not sure that the additional £100 is entirely justified.

Your cash does buy you a comprehensive set of vector-based drawing tools, as well as the ability to import your own drawings to work from. There's sophisticated lip-syncing technology, and you are able to blend a combination of 2D and 3D elements, as well as importing photos and giving your subjects 'Bones', bringing them to life in your own animated movies.

The interface looks a little cluttered to the uninitiated, but it becomes simple enough to navigate once you've been through the ample tutorials on offer. It didn't take us long to progress from experimenting with the library of characters and objects in the software to creating our own from scratch, with animations being pretty simple to generate.

More advanced users will appreciate the software's LUA scripting facility, enabling you to create your own custom tools, plug-ins or special effects, as well as modifying existing ones to suit your personal needs and style of working. You are also able to share these with other animators via an online community, which is a great way of expanding your animation toolkit and gaining inspiration from others.

Overall, Anime Studio Pro 6 does have an interesting set of innovative features to offer hobbyists, but we're not so sure that it will satisfy the needs of more seasoned professionals.

http://my.smithmicro.com/

Our verdict

Features	8/10
Ease of use	7/10
Quality of results	8/10
Value for money	7/10

"A fun and easy program to use, Pro 6's innovative features should prove popular among budding animators"

Final Score 8/10

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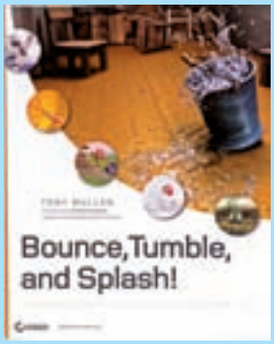
No, not what you did on your summer holidays



info

AUTHOR
● Tony Mullen

PRICE
● $49

PUBLISHER
● Sybex

ISBN NUMBER
● 9780470192801

By the time you read this, original Blender creator Ton Roosendaal will have been honoured with an honorary doctorate from the UK's Leeds Metropolitan University. That's how clever this open source 3D tool is. And because it's free, you want to get the most from it. This is the reason such a specialist book as *Bounce, Tumble and Splash!* can exist. Its subtitle is 'Simulating the physical world with Blender 3D', and rather than being the run of the mill beginners', intermediate or advanced guide to the entirety of the program, it concentrates on replicating real physics: windblown hair, soft flesh, rippling water, grass rustling gently in the summer breeze...

And it really tries to make it sexy. The title is a dead giveaway – you know you need to have a book on doing accurate physics in Blender, it's an absolutely fundamental skill, whether you work in the industry or experiment with it on a budget, but fortunately it is at least a good read.

Author Tony Mullen has really tried to make this necessary grind a light-hearted and enjoyable thing to do. The exuberant title is by no means the only one in the book, although 'Getting Jiggly With Lattices' is nowhere near as funny as the phrases employed by Mullen in this particular subsection to politely edge around exactly what stuff might 'jiggle in response to a character's movements'.

It's actually a very good thing that this is the editorial tone of *Bounce, Tumble and Splash!* because it is by no means a beginner's guide, but it is an essential one. Each tutorial has a focal point – gelatine, fireworks, windswept-and-interesting, simple plants – but they're all core physical models, and a good understanding of them can be applied to other things: body movements, growth, time-lapse and explosions, any kind of moving object, your entire 3D environment.

Publisher Sybex has a nice eye for these kind of books, which are ideal for animation and games design students as well as what photographers call 'prosumers' – people who do it for fun and are really rather good at it. This book provides a springboard for these users to take their Blender skills to the next level. So let's put it this way: if the book intrigues you, you need it.

PALMS AND FERNS
Ferns and palms can create the effect of an exotic environment, but they're also one of the easiest plant forms to design because of their fractal simplicity

PLANT LIFE
Other plant life is also covered in *Bounce, Tumble and Splash!*, giving you sufficient resources to create a nicely believable outdoor environment

RIGID BODY BLOCKS
The idea of basing forms on simple geometric shapes is one that's been borrowed from life drawing, but it's ideal for 3D modelling

MORE EXPLOSIONS!
Fireworks are always a crowd-pleaser, and here you can learn how to create them, which is a great springboard for even more explosive effects

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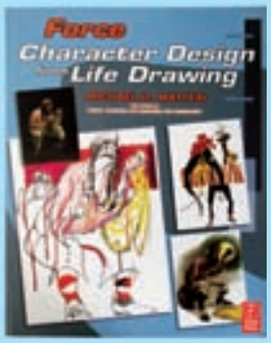
Force: Character Design from Life Drawing £17.99

Capture the essence of your subjects



Art books! Our sister mag, the Official Corel Painter Magazine, has given up trying to fit their expansively didactic titles in and just pretends there are colons in appropriate places.

This book is about observing and creating characters in quick, emotive little sketches. Less attention is paid to physical accuracy than you'd expect, because the focus is on expression of movement and feeling rather than anatomy. The point of life drawing of this kind is to observe not the form but the character. The style of Mattesi's sketches is queasily elegant – full of sinuous lines but noticeably distorted and occasionally unsettling. They're definitely full of life, but you might not want to meet these characters on a dark night – even in a life drawing class.

info
AUTHOR
● Mike Mattesi
PRICE
● £17.99
PUBLISHER
● Focal Press
ISBN NUMBER
● 978024080993

CHARACTER AND CARICATURE
Expressing the key elements of a character can mean exaggerating physical traits like body mass and feature shapes

CAPTURE FORM
Pure anatomy is one thing, but mood and temperament adds massively to how a character holds themselves and conveys emotion

CREATE STANCE
Stance is informed by many elements of a character and is an easy way to convey strong feelings such as anger, sadness or joy

Mastering Maya $69.99

Don't let it beat you!

By now we'd estimate that the number of books published on the subject of Maya have deforested an area of Brazil the size of Surrey, and decimated the population of at least two previously unknown and now critically endangered species of bat.

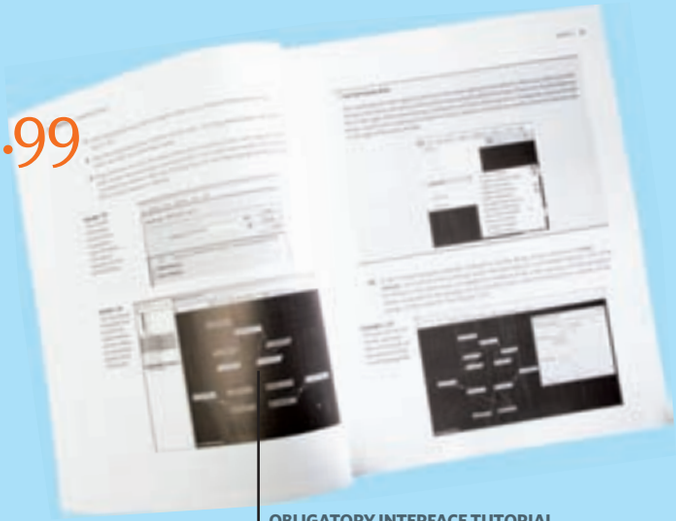
Still – we've got to learn our 3D skills somehow.

You'd think that this book's title means that it's an intermediate to advanced guide, but *Mastering Maya* is another one of those books on the subject that start with an entire chapter devoted to the program's interface.

Either it's presenting itself as something cleverer than it is, or not even a higher level tutorial book on Maya is prepared to chuck you into it with only common sense and Undo for guidance.

We're inclined to the latter opinion – there are plenty of renderings from concept art in here, which shows the artistic level expected of *Mastering Maya*'s readers.

info
AUTHORS
● Eric Keller and Eric Allen
PRICE
● $69.99
PUBLISHER
● Sybex
ISBN NUMBER
● 9780470392201



OBLIGATORY INTERFACE TUTORIAL
The first rule of any Maya book is don't go into the program without a compass, a ball of string, several Sherpas and a helicopter for backup

REAL-WORLD RENDERS
You don't want to have to spend your time rendering boxes and doughnuts, so this book is packed with interesting subjects such as faces

ADD SOME SOUL
Learn how to develop, create and render expressions and facial movements in order to give your creations some life and character

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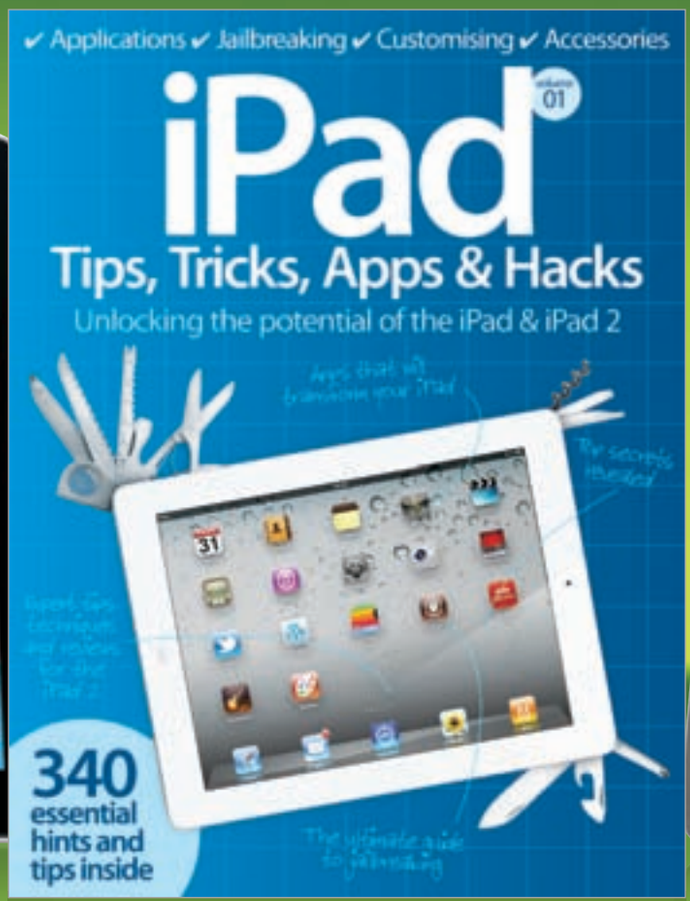
Tips, Tricks, Apps & Hacks
The insider's guide to unlocking the potential of the iPhone
340
essential hints and tips inside

iPad



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Inside guide to industry news, studios, expert opinion and education

The Ant Bully
Interview with Hugo Morales
© Warner Bros. Pictures. Released courtesy of Warner Bros.

102 Insider interview
Hugo Morales
Each issue we talk to an industry pro on how they got where they are today. This issue, the senior cinematic animator from BioWare Corp shares the secrets of his success

96 News
Industry news
All the software releases, updates, events and competition news from around the 3D world

inside

Teesside University

104 Uni Focus

Teesside University
We catch up with the staff and students of the BA (Hons) Computer Games Art course to find out what they learn and to see a sample of the students' work

Jenny Freeman, art director at EA Canada, on designing *Fight Night Round 4*. **Page 98**

> "A smile on Tyson doesn't look like a smile on Ali… when they both smiled, Tyson's mouth movement was less open than Ali's"

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Large-scale projects such as *Terminator Salvation* utilise Autodesk software at every stage of the production process
© 2009 Warner Bros. & Sony Pictures. All Rights Reserved. Photo courtesy of: Industrial Light & Magic

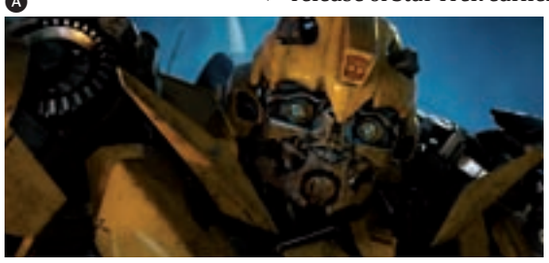
Industrial Light & Magic – powered by Autodesk

Autodesk software helps to deliver visual effects to blockbuster films

The biggest films of the year so far have wowed audiences across the globe with their stunning visual effects. The Academy Award-winning visual effects house Industrial Light & Magic has created the visuals for such titles as *Transformers: Revenge of the Fallen*, *Harry Potter and the Half-Blood Prince*, *Terminator Salvation* and *Star Trek* with the aid of technology from Autodesk.

ILM has been making the most of Maya and Inferno as part of its high-end SABRE compositing system to create, for example, 797 shots for the release of *Star Trek* earlier in the year. "This film represented a new beginning for *Star Trek*," says ILM animation director Paul Kavanagh.

"Using the hardware-rendering tools of Maya, we were able to animate 70 shots in five days – a process that normally requires months for production. The speed of Maya, its ability to iterate so easily and its seamless tie into our proprietary Zeno software platform made for a toolset that was a key to the success of the project."



A

B

Transformers: Revenge of the Fallen proved an even bigger project. The crew at ILM used Autodesk software at every stage of the process, from 3ds Max for digital matte painting to Softimage in the art department, but used Maya for the core animation.

Autodesk has also been hitting the headlines in other parts of the world recently, announcing that its Maya software has been used by Indian animation studio BIG Animation to create *Little Krishna*, acquired by Nickelodeon. Similarly, Oscar-winning filmmaker Chris Landreth turned to Maya to shape his latest animated short, 'The Spine'.

Find out more about the latest industry uses for Autodesk at www.autodesk.com.

A The average home computer would have taken 16,000 years to render the whole *Transformers* film
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B ILM created 797 shots for the new *Star Trek* film
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London's May Fair Hotel goes 3D

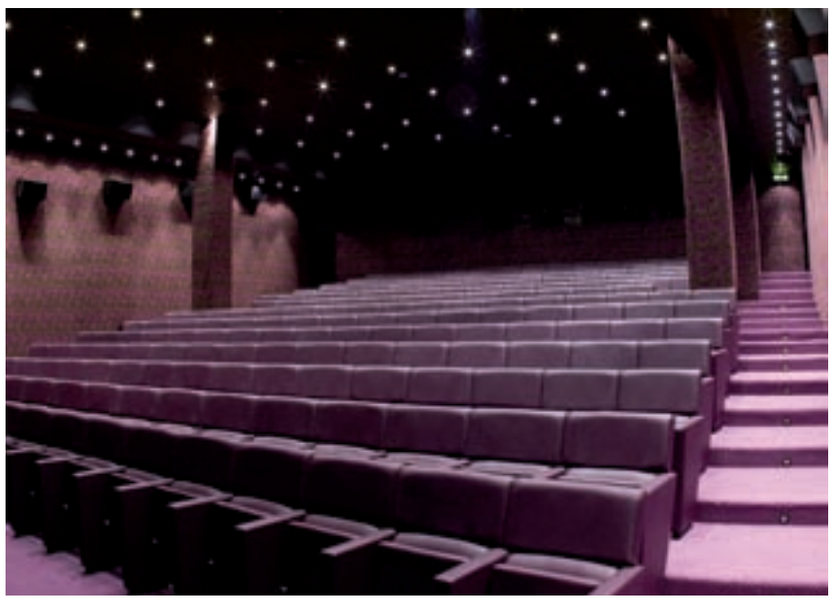
The first hotel in the City to install a 3D cinema system

The May Fair Hotel in London has introduced a luxury 3D screening room to take advantage of the latest blockbuster movies using 3D technology.

The existing screening room at the prestigious hotel is already the biggest and most technically advanced in London, but now it provides visitors with even more – completely immersing them in a full 3D experience. "People already tell us that the screening room is better than going to the cinema in terms of viewing quality, let alone the experience of sitting in such a wonderful, luxurious arena with the very finest food and drink on offer. We are now building on this reputation with 3D in order to give unforgettable entertainment," says Charles Oak, general manager of The May Fair Hotel.

The 3D technology is provided by RealD, which offers a more sophisticated system and lighter glasses. According to RealD's managing director Bob Mayson, this is a technology that is here to stay, with 300 systems already installed in cinemas through the UK and up to 1,000 currently across Europe.

The May Fair Hotel's latest innovative addition comes at a time when new 3D titles are being produced at a rate of around 20 a year, with predictions that this figure is set to rise rapidly off the back of films like *Ice Age: Dawn of the Dinosaurs* and *Avatar*. You can find out more about the screening room at www.themayfairhotel.co.uk.



"The existing screening room at the prestigious hotel is already the biggest and most technically advanced in London"

New training course for Nuke and Maya

The industry's first course to combine the two packages

Escape Studios has launched its – and the industry's – first 3D visual effects course, combining the power of both Nuke and Maya.

Called Nuke for 3D Artists, the interactive online course is aimed at those who have a working knowledge of 3D imaging software Maya. Nuke is a 3D compositing software that has quickly become the leading package in visual effects, having been used in *The Curious Case of Benjamin Button* among other notable productions.

The course lasts 11 hours in total, allowing students to improve their skills as visual effects artists. It costs £249 from www.escapestudios.com.

Road test for 3D Workspace

AfterCAD Software announces beta signup for new product

Software developer AfterCAD (www.aftercadonline.com) has announced that users can now sign up to test its new beta of 3D Workspace.

3D Workspace is a software-as-a-service (SaaS) solution that enables businesses to upload, mark up, manage and publish large 3D CAD files. Designed as a "complete online file system," 3D Workspace makes it quicker to share work without the need for a proprietary viewer, perfect for sharing designs with clients who may not have CAD experience.

It's a simple solution that takes minutes to set up via a browser, then you can invite other users to log in and see projects.

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Studio Access

Fight Night Round 4

EA Canada talks us through the process of building legends

EA Canada is responsible for some of the industry's most successful sports franchises

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Project *Fight Night Round 4*
Description The fourth iteration of the world's greatest boxing sim, featuring some of the most impressive character models to ever feature in a videogame and some seriously advanced physics underpinning the animation
Country Canada
Publisher EA
Software used Maya

Boxing has been a part of the videogaming landscape since the industry was in its infancy, as anyone who battled with *Mike Tyson's Punch Out* will attest to, but in recent years the sport has really come to life through our high-definition screens. EA's unparalleled *Fight Night* series has led the way with its dedication to gut-thumping realism, bleeding-edge graphics and audiovisual razzmatazz.

Now on its fourth iteration, *Fight Night* has become synonymous with benchmark character models, the sort of visual fidelity that competitors can only dream of. Jenny Freeman, art director on the project, talks us through the process of not only taking someone as recognisable as Mike Tyson or Muhammad Ali and bringing them to life, but doing it better than ever before.

"It's not just the character models that have been upgraded, but the shaders and textures, too," Freeman explains. "We used denser models, especially on the face and gloves, so the deformation and ripples looked organic. Our textures and shaders also became more layered. In *FNR3*, which looked fantastic, the boxers were a snapshot in time. Their muscles were always fully flexed even when they were sitting down and relaxing. In *FNR4*, we created Normal maps that were dynamic and driven by the animation poses in the game. We divided the body into 16 separate zones; when the boxer goes in for a punch, his Normal maps change to the more flexed version to show that the arm muscles are moving."

So far, so impressive, but even the mightiest of boxers have to be built, so what sort of toolkit do the vast teams at EA Canada have at their disposal?

> "Fight Night's coup de grace, those stomach-churning, bone-crunching slow-motion replays"

A

"We used a wide variety of tools in the production of *Fight Night Round 4*, including off-the-shelf software like Maya and Photoshop, and quite a few in-house proprietary tools, things like asset conditioners and converters, pipeline tools, in-game camera choreography tools, a runtime rendering engine and so on.

"The runtime engine is tuned specifically for and contains features created for *Fight Night 4*, but it is built up from components that are shared across many EA games. For rendering, we use a suite of EA

Portfolio highlights

A quick look at some of the games that EA has worked on

2008 *FIFA 09*
2006 *Need For Speed: Carbon*
2005 *SSX On Tour*

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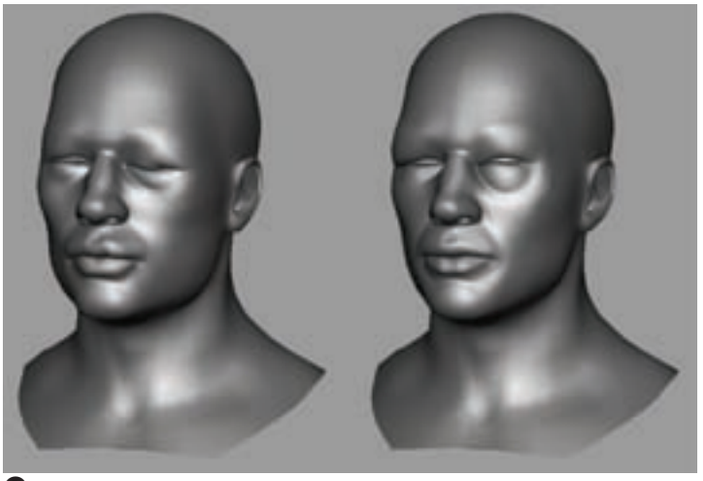
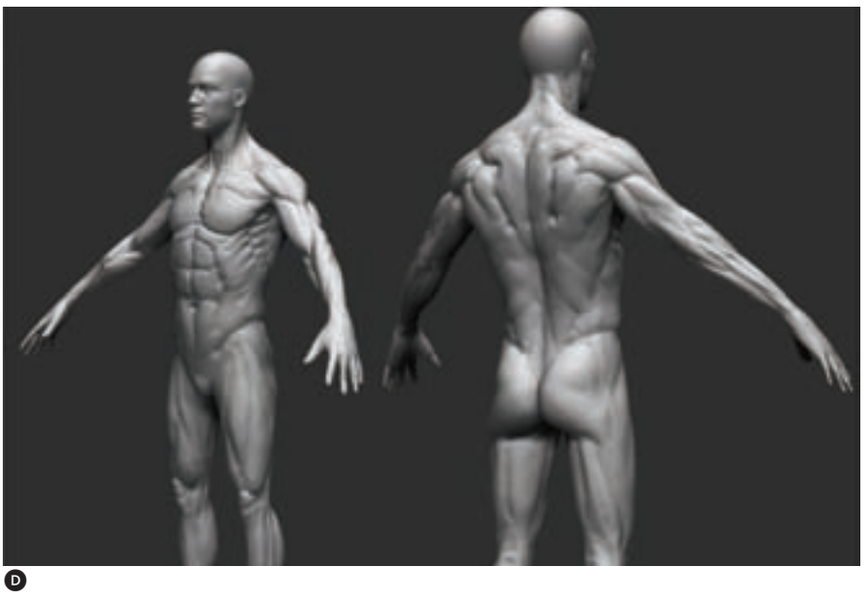


B

C

software tools we call RNA (Rendering Next-gen Architecture), which is a modular package that allows game teams to assemble their own pipelines and runtime engine from existing modules, as well as implement their own new graphics features."

With that sort of muscle behind it, it shouldn't be too surprising that EA has the power to make its models look rather impressive. But to avoid the dreaded Uncanny Valley theory, these models have to look and move convincingly – a criticism often levelled at *Fight Night Round 3*. "*Fight Night Round 4* uses a special physics-based skeleton (animation rig) for its boxers. This skeleton is built in Maya and consists of bones and joints like a standard Maya animation rig, but it also has a number of additional components that allow it to work with our proprietary in-game real-time physics system. The additional features include things like new joint types, joint motion limits, physics drives that simulate muscles and collision volumes. The



D

A Blood, sweat and tattoos –constants in the world of boxing. We've tried to avoid using the cliché that the game makes you feel that you're actually there in the ring, but with *FNR4* it's just so appropriate...

B *Fight Night Round 4*'s facial deformation is subtler than its predecessor's, and actually all modelled in 3D rather than layered textures

C Every ripple of skin when receiving a punch can be seen, while grim determination is evident on the boxer landing a successful blow

D Tyson's more ripped frame shows how each boxer's model differs, and how much work has gone into realistically re-creating each famous fighter's muscle mass

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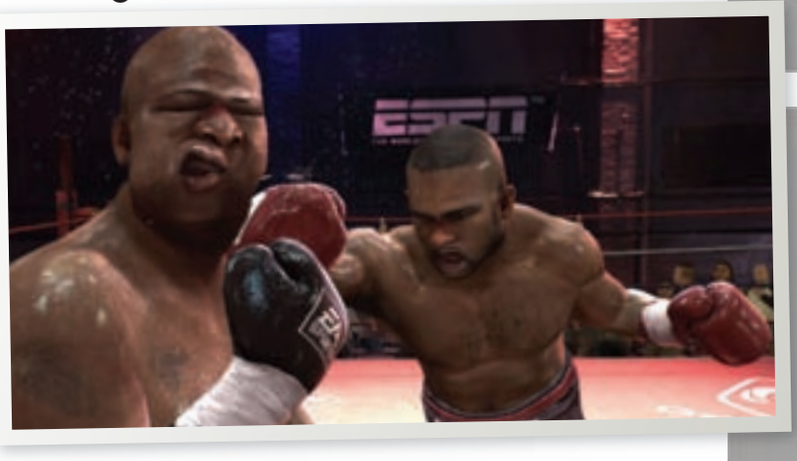
animation system drives the motion of the boxers through this physics rig, and the resulting behaviour of the boxers is a blend of animation clips and real-time physics-based interaction."

The results are staggering. CG cinema may have the edge when it comes to resolution and clarity, but the way muscles move beneath skin and gloves slide past faces makes even high-end movie characters look somewhat robotic. It's a system that only really reveals its true brilliance during extended play, as players learn when to dodge and weave from the slightest muscular inflections in their opponent's arms. There's literally never been anything like it.

And, of course, there's *Fight Night*'s coup de grace, those stomach-churning, bone-crunching slow-motion replays, where fist meets jaw and every last shock wave can be seen flowing through the victim's unconscious face. Freeman explains just how much work has gone into the facial construction of such iconic boxing figures: "A smile on Tyson doesn't look like a smile on Ali, but we still had to use the same standard facial animation because we were restricted with load times and running at 60fps. The system would map the standard animation onto the individuals' facial proportions. The head modeller would use a pose system where they input how big each head's mouth movements would be – for example, Ali's would be a 9 and Tyson's would be more like a 6, so when they both smiled Tyson's mouth movement was less open than Ali's. The end result is that the facial animation looks individualised but it is not."

Tricks of the trade are all very well, but without the technical muscle of EA's monster computers, mere mortals would struggle to even come close. This is character modelling of the highest order, created by masters of the art. Quite how *Fight Night Round 5* will eventually better it will be a battle worthy of the sport itself.

E



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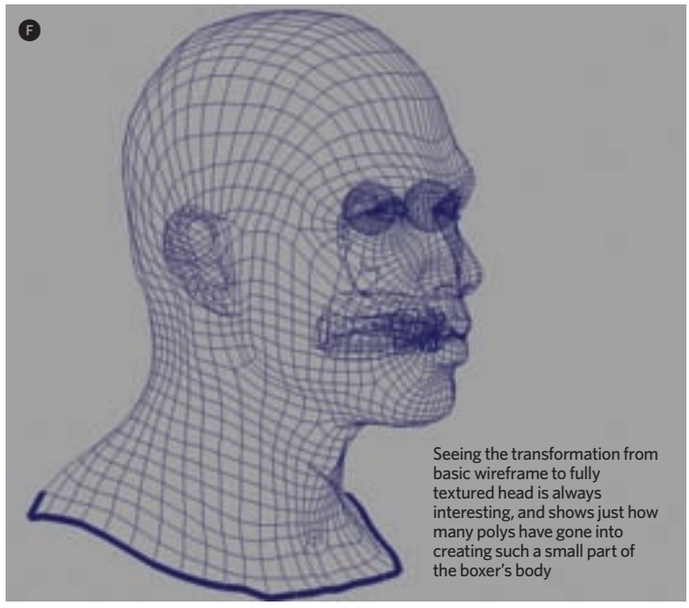
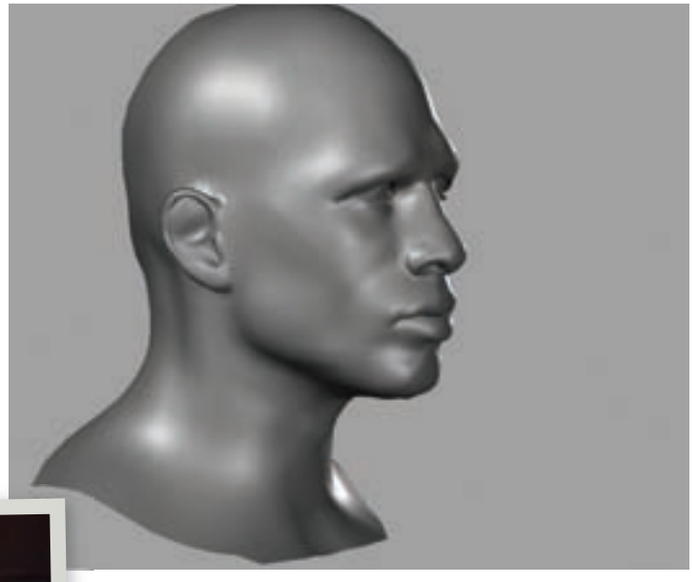


Seeing the transformation from basic wireframe to fully textured head is always interesting, and shows just how many polys have gone into creating such a small part of the boxer's body



E The impact of a glove connecting with flesh produces the exact reaction on the face that you would expect it to

G Early renders of different body types shows that EA had been focused on the muscular skeletons even from the very early stages

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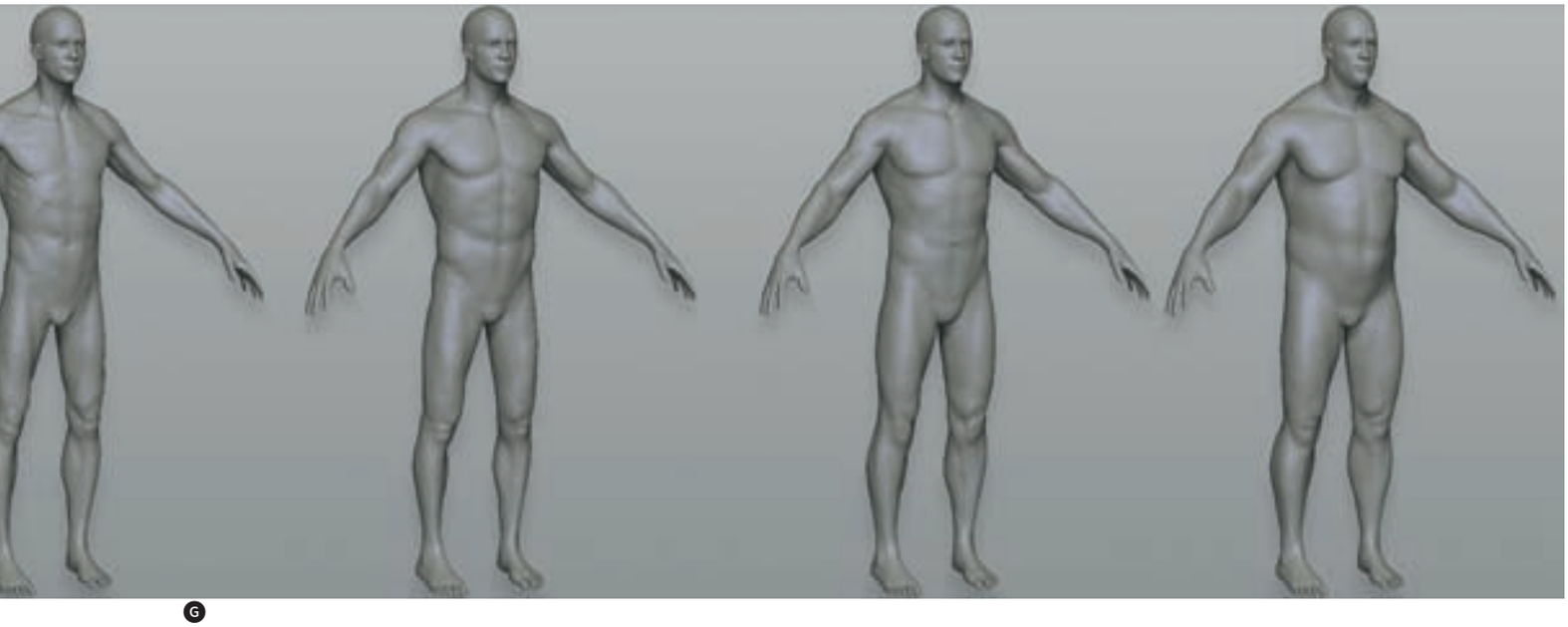

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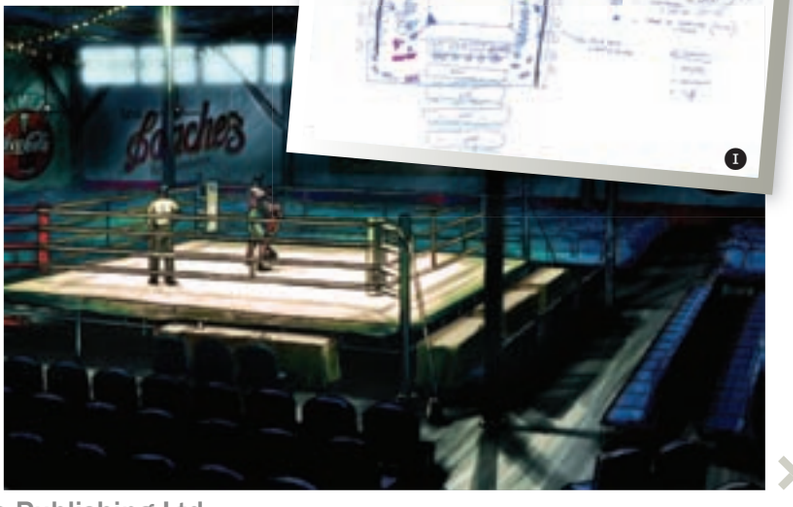

> A smile on Tyson doesn't look like a smile on Ali… when they both smiled, Tyson's mouth movement was less open than Ali's

H There's the man himself. It must have seemed strange to spend this much time rendering the face of such a questionable character, but there's no mistaking the accuracy

I It's always fascinating to see early sketches. The work that has gone into the crowd hasn't gone unnoticed – better than the flat textures that would have previously appeared

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Industry insider

Hugo Morales

Senior cinematic animator, BioWare Corp

Each issue, **3D Artist** finds out how the top people in the 3D industry got their jobs and what you need to know to get a foot in the door

About the insider

Job Senior cinematic animator at BioWare, a division of EA

Education Dawson College – Film Production

Capilano College – Intro to 2D Commercial Animation

VanArts – Intensive 3D Studio Max

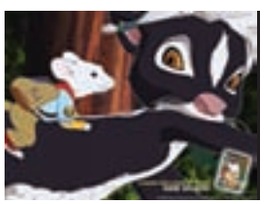
Company website www.bioware.com

Personal portfolio site www.hugomorales.ca

www.myblog.hugomorales.ca

Biography I started my career in 1995 as a 2D traditional animator. I switched to 3D in 2002 and since then I have worked on several projects using 3ds Max, Maya and Softimage. I'm currently working at BioWare as a senior cinematics animator on *Mass Effect 2*

Stuart Little 3
Hugo was involved in the animation of the *Stuart Little* series



After working as a traditional animator, Hugo Morales has worked his way up to the lofty heights of senior cinematic animator. We caught up with him to see how he has charted his career in 3D.

3DA: *Who are you and what is your job? What does this normally entail on a day-to-day basis?*
Hugo Morales: Currently, I work as a senior cinematic animator at BioWare, a division of EA. My main duties are to animate and implement motion capture; in other words, to create cinematics for the upcoming *Mass Effect 2* videogame. I also solve technical issues, export animations to the game engine, render and whatever it takes to get a cinematic sequence into the game.

3DA: *What kind of course did you do at university, or training did you do?*
HM: I took a Film Production programme in college, which was more angled towards animation. When I moved to Vancouver, I enrolled in a 2D commercial animation programme. During those years, I was teaching myself 3D animation using 3ds Max and finally signed up for an intensive summer 3D animation course at VanArts in Vancouver, BC.

3DA: *For today's generation of students, what is the kind of educational grounding they should be looking to undertake to get a first job as a cinematic animator, or is the entry level a less specific role?*
HM: The role of a cinematic animator requires knowledge of cameras, staging, composition and editing; in other words, knowledge of filmmaking. Not only are you animating, but you're also telling a story. For the most part, experience in film animation is a good start. For animators coming out of school, we look for a good short film or demo showcasing their abilities to tell a story, with an eye for cinematography. Most schools will teach you the tools and show you how to animate but, ultimately, it's up to the animators to show their talent.

3DA: *What were you doing before you joined the company, and how did you get the job with BioWare?*
HM: I had just finished working on *4: Rise of the Silver Surfer* at Frantic Films in Vancouver when I received a call about a position at BioWare in Edmonton. Since my contract with Frantic was almost done, I was looking for something a little more permanent and the opportunity to work at BioWare came at the right time.

3DA: *Is there much of a culture or professional working practice difference between working at somewhere like Frantic Films and at a games company like BioWare?*
HM: Definitely. Every studio I've worked for has had its own unique culture. BioWare's culture and professionalism is one of the best I've experienced by far. This is due to the core values outlined by our Dr Ray Muzyka and Dr Greg Zeschuk, BioWare's founders: quality in the workplace, quality in our products and entrepreneurship in a context of humility and integrity.

3DA: *What software packages and tools do you use at BioWare?*
HM: We use mainly 3ds Max and Puppetshop for our rigs. We also use Maya, Adobe Premiere, Photoshop and After Effects. We use the Unreal Engine and we developed The Eclipse Engine and proprietary tools for *Dragon Age: Origins*.

3DA*: Do you think there is a shortage of skilled digital artists doing animation, and did you find it difficult getting into the industry?*
HM: There is definitely a shortage of skilled technical artists and animators in the game industry. Our work is 60 per cent animation and 40 per cent

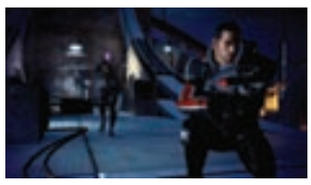
portfolio highlights

An impressive list of some of the projects Morales has racked up in his career

Games:
TBA *Mass Effect 2* to be released early next year
2009 *Dragon Age: Origins*
2008 *Army of Two*
2005 *GoldenEye*

Feature films:
2007 *4: Rise of the Silver Surfer*
2006 *The Ant Bully*
2006 *X-Men: The Last Stand*
2005 *Stuart Little 3*

TV series:
2004 *Trippin' the Rift*
2001 *What's With Andy?*
2000 *Bad Dog*
1999 *The Kids from Room 402*
1997 *Student Bodies*



Mass Effect 2
Morales's work on *Mass Effect 2* has been one of the "most challenging and rewarding" projects he's worked on

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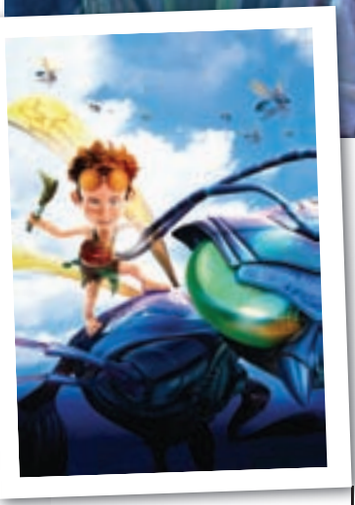


The Ant Bully
Morales classes his time on *The Ant Bully* as the most satisfying project he has worked on professionally
The Ant Bully © Warner Bros. Pictures. Released courtesy of Warner Bros

technical/other. We do everything from animating, implementing mocap, editing, compositing, exporting to the game engine and testing, anything and everything to get it into the game.

Because of my 2D and 3D film and TV background, it wasn't hard for me to get a job in the game industry. But it's been extremely challenging, both technically and artistically.

3DA: *What are the key skills required to work as an animation artist?*
HM: The formula is very simple... knowing how to animate is first. This includes the proper use of timing, weight and acting. Even if you are a very talented animator, this often isn't enough, so you should acquire technical skills. You don't have to know all the major 3D packages. One is enough, and as long as you know how to use it, most companies will teach you their own tools.

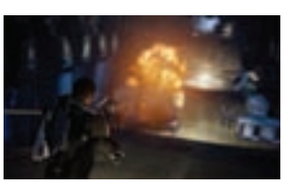
3DA: *If there was one feature missing from current software apps that you'd like to see implemented to help the cinematic animator, what would it be?*
HM: A better rig. No one software is stronger than the other... it's what you can do with it that matters.

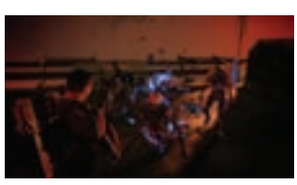
3DA: *Do you have a personal approach to life and do you try to bring that to your work?*
HM: Yes, I do. When I was young, my father would often tell me, "If you're going to do something, whether you like it or not, make sure you do it right." So I make sure I know what I need to do to get the job done properly, even if it means going that extra mile.

3DA: *Professionally, what's the most satisfying project you've worked on and why?*
HM: I would have to say *The Ant Bully*. I worked on the film for seven months. Although it wasn't commercially successful, it was extremely rewarding seeing my name scroll in the credits at the cinema. The feeling comes back when I see it play on TV. Soon we'll be releasing *Dragon Age: Origins* and *Mass Effect 2*... two of the most challenging and rewarding projects I've ever worked on. I'm sure it's going to be equally satisfying when I see others play and enjoy the game and its cinematics.

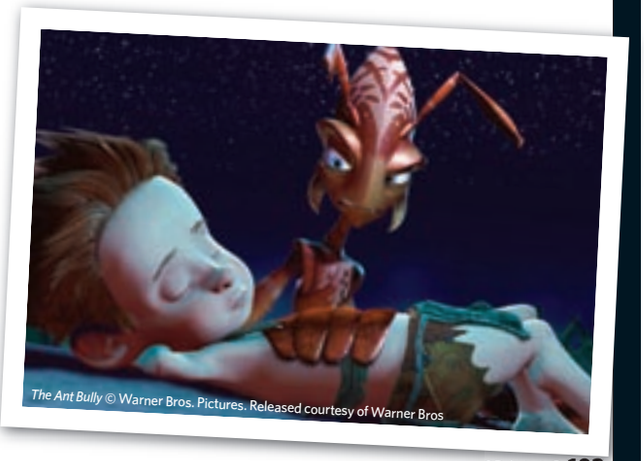
3DA: *What would be your dream project to work on?*
HM: In games, I think I'm already working on them. BioWare's core values make us work hard and enjoy making the best games in the industry.

In film, like most animators, any project from Pixar. They are at the top of the animation ladder in terms of quality.





Game software
In his role as senior cinematic animator, Morales uses a variety of software, including 3ds Max and Maya



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+ The best course and freshest talent from universities around the globe...

Teesside University

BA (Hons) Computer Games Art

Teesside University is a hugely popular choice for students looking to enter the 3D design industry. Based in Middlesbrough in the north of England, it provides a vast range of courses within the graphics arena and sees students coming from all over the world to study there. Middlesbrough is regarded as a friendly town and has recently had £120 million investment spent on it, so it's more welcoming than ever.

Teesside University's fantastic reputation within the animation and games sector is largely down to the university's fantastic facilities. Students can enjoy excellent resources for animation, multimedia, games, networks, digital postproduction and digital music studies. Software includes Autodesk 3ds Max, Maya or Softimage, visual programming languages, IT applications and a range of internet software.

The university consists of six schools: Arts & Media, Computing, Health and Social Care, Science and Technology, Social Sciences & Law and the Business School. The animation and computer games courses come under the remit of the Computing School.

Famed for its lively Students Union and student publication *The Terrace Star*, students have plenty of opportunity to practise their design skills outside of the course, contributing to the student newspaper and other Student Union projects.

There are currently five inspiring Bachelor of Arts courses geared towards graphic artists. These include: BA (Hons) Computer Games Art, which is a 3D modeller's degree combined with some concept art; BA (Hons) Computer Games Animation – a real-time-focused animation degree, which also looks at prerendered material; BA (Hons) Computer Games Design, which covers games design and development; BA (Hons) Computer Animation – a great course covering general animation; and finally BA (Hons) Computer Character Animation, which focuses on character animation work.

The university has experienced such success with its BA courses that it has developed a range of specialist Masters (MA) courses, which are beginning in October 2009. These include MA Computer Games Art (Characters), MA Computer Games Art (Environments), MA Computer Games Art (Vehicles) and MA Computer Animation.

Teesside University also provides some fantastic extracurricular activities to keep students fulfilled. Enjoy the area's fantastic surfing, make the most of an amazing National Park and enjoy all the shopping, bars and clubs you can fit in.

Course details

Tel +44 (0)1642 342639

Web www.tees.ac.uk

Duration Three to four years

Fees £3,225 a year/£806 in a placement year. Go to www.tees.ac.uk/sections/fulltime/fees.cfm. Teesside University also offers a generous bursary and scholarships that could be worth more than £6,000 over three years

ENTRY REQUIREMENTS
Typical offer: 260-320 tariff points (2010 entry)
Portfolio required for interview
Apply online on UCAS website or contact scm-undergraduate@tees.ac.uk

> "Working in the games industry is a child's dream. When I learnt about Teesside, I did everything possible to get there"
>
> **Nicolas Millot** 2009

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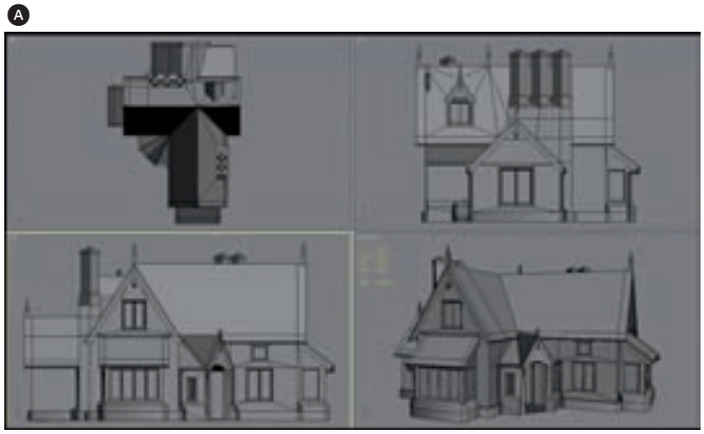

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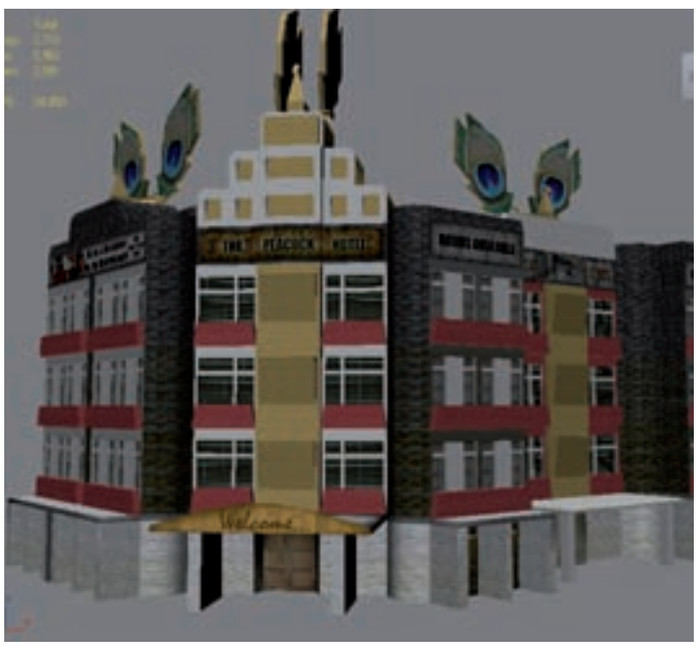

C

D

A Medieval house
» **Nicolas Millot**
Time taken: 15 hours
3ds Max, Photoshop
"This is the first building I ever created and textured. I had the film *The Name of the Rose* in mind, where the medieval age is depicted full of mud and dirt. I wanted the viewer to think of the dwellers of the house."

B Medieval house wireframe
» **Nicolas Millot**
Time taken: 15 hours
3ds Max, Photoshop
"When I learned about Teesside, I did everything possible to get there. I worked with the latest hardware and software to perform my projects. All the resources are free to access, and opened every day."

C Environment
» **Azad Afsar**
Time taken: 16 hours
3ds Max
"Buildings like the hotel model demand more planning beforehand to save time in areas of repetition. This particular model was textured using tile texturing, a way of saving time by using textures in repetition."

D Aralius
» **Carl Button**
Time taken: 25 days
3ds Max, Photoshop
"This is my first 3D character model. We had a limit of 10,000 tris, and textures had to be 2,048 x 2,048. I used ZBrush for the organic areas and created a high-poly model in 3ds Max for the hard-surface normals."

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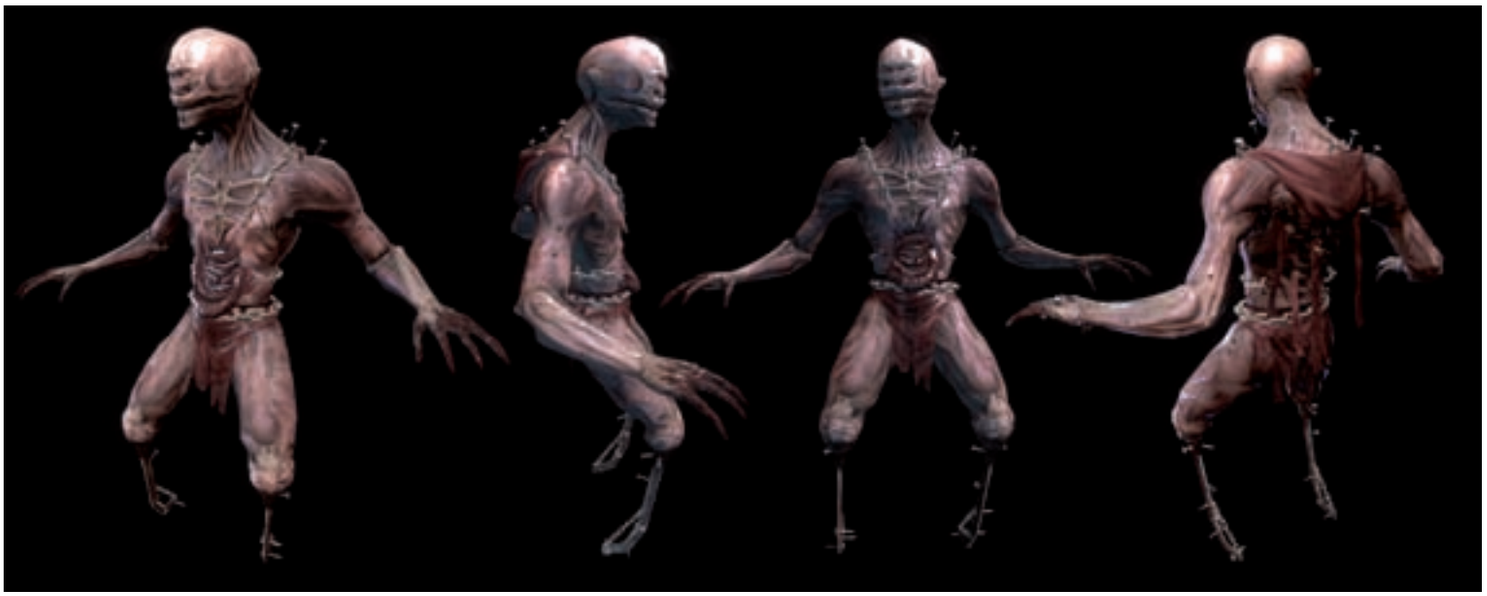

E

F

G

E Freak
» **Peter Adamson**
"My time at the university has been pretty invaluable to me, as it provides a great platform to get to grips with all the techniques to get started making some incredible game artwork, and is diverse enough to give you a sample of all the different disciplines."

F Self-portrait
» **Peter Adamson**
Time taken: One month
3ds Max, Mudbox, ZBrush, Photoshop, CrazyBump
"The self-portrait model was a section of my final year university project. I chose to create myself, as I wanted to create a realistic character model that tested my ability to model, sculpt and texture accurately from photographic sources."

G Sci-fi laser weapon
» **Peter Adamson**
Time taken: Five days
3ds Max
"The sci-fi laser was created for a final-year module in which a team of artists, designers and programmers had to create a game or game mod. This weapon was of my own design and creation, and was my first attempt at baking maps from a high-polygon object entirely created in 3ds Max."

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> The facilities provided gave me an amazing opportunity to try new things and explore many aspects of games
>
> **Richard Gardner** 2009

H Industrial 2009
» **Richard Gardner**
Time taken: 30 days
3ds Max, CrazyBump, Photoshop, SandBox2 Editor (Crysis)
"Inspired by photos on a photography website, I compiled a mood board with various artists' work and other forms of inspiration. Using these as the foundations for an idea, the scene was quickly blocked out and previsualised. It went through many stages and testing in both composition and lighting, and became the building blocks for my portfolio as well as learning new skills while under a deadline."

> Thanks to a university-sponsored competition, I now work for Ubisoft Reflections in Newcastle
>
> **Peter Adamson** 2009

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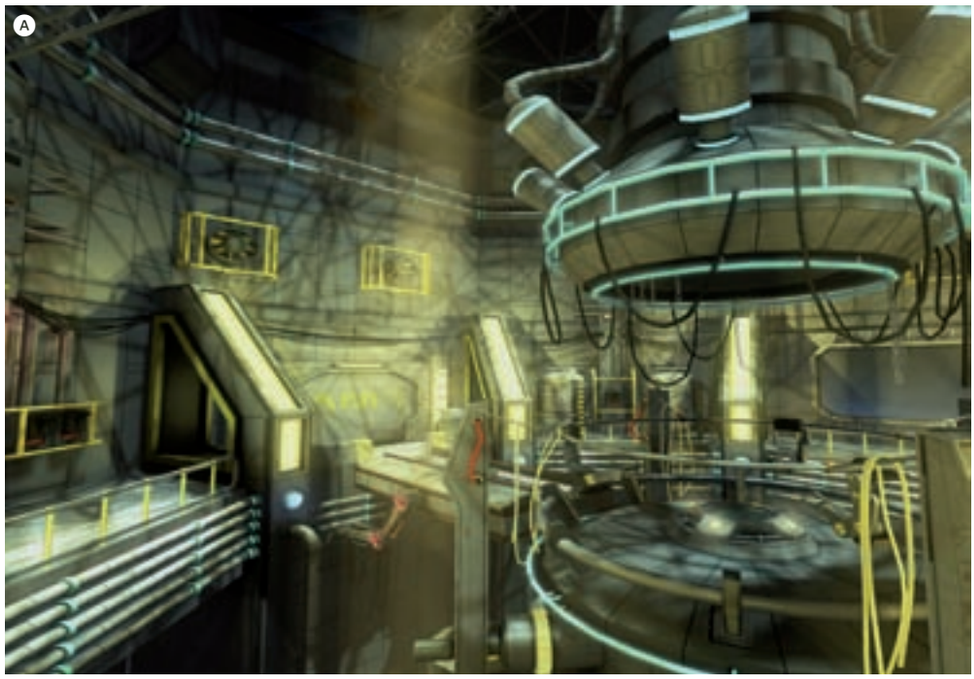
Global student galleries

Check out the 3D galleries of students from courses and universities all around the world

Welcome to the Global student gallery section in 3D Artist, where we take you around the world to see what is being created in the land of learning. Each issue we'll select the works of a few individuals who have produced interesting, exciting or just plain excellent work and showcase it here. Do you think your portfolio is good enough to appear in the Global gallery? Well, for a start you must be a student, whether that's full time, part time, by mail or online. All are equally valid. Also, if you graduated from a 3D graphics course within the last 12 months then that's great as well. In the first instance, get in touch with editor Duncan Evans (**duncan.evans@imagine-publishing.co.uk**), preferably with a link to your portfolio so he can have a quick look at your work. List your name, what university you went to and the course you did or are doing.



A

B

C

Artist info

Mouhsine Adnani

Personal portfolio site www.mouhsine3d.blogspot.com

University website www.aifl.edu

Country Morocco/USA

Software used 3ds Max, Photoshop, Mudbox, Unreal Engine 3, After Effects

While my passion for gaming started as a child, it is the formal education I received in game and art design as well as all the freelance I've been doing that has made me more eager to start my career in a field that is ever-changing and continues to fuel my passion.

A The Space Station, 2008
» **Mouhsine Adnani**
3ds Max, Photoshop, CrazyBump
"This was also for my demo reel and for reference I used one of Feng Zhu's pieces of concept art. I kept the poly count low, while everything was unwrapped and the textures were hand-painted."

B The Hassan II Mosque, 2008
» **Mouhsine Adnani**
3ds Max, Photoshop
"I think this is one the most intricate models I've ever made. I modelled every little detail, and spline modelling was the only way of doing this."

C Al Karawayne, 2008
» **Mouhsine Adnani**
3ds Max, Photoshop, CrazyBump
"This was part of my demo reel. I'm from Morocco so I wanted to re-create some of the beautiful architecture from there."

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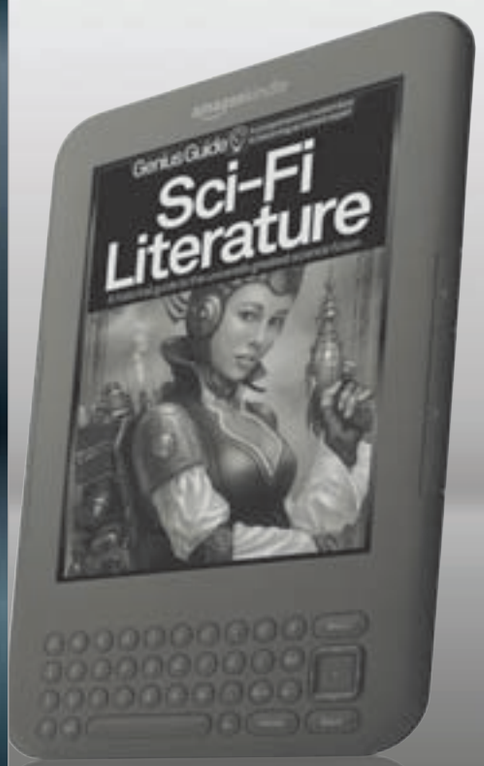

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